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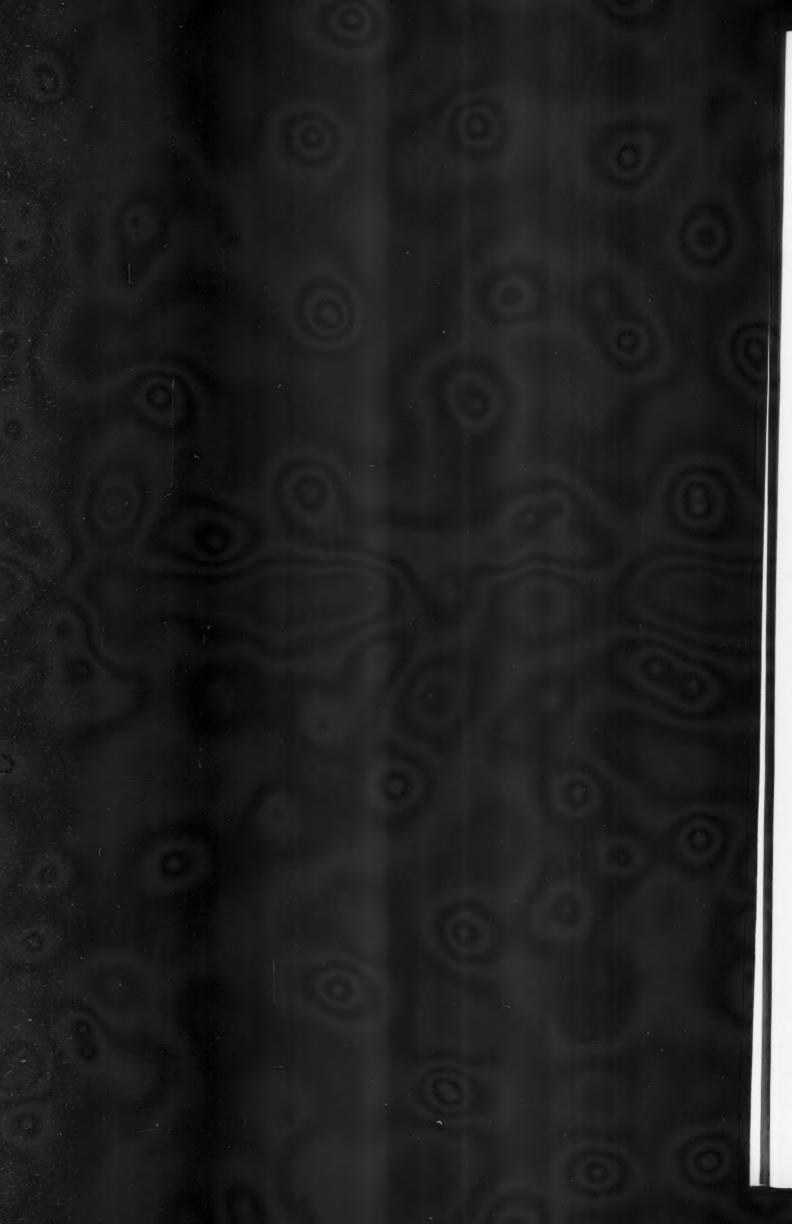
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PHOSPHOR-BRONZE GERMAN SILVER

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THE IRON AGE

New York, Thursday, January 21, 1909.

The Walker Gear Hob Grinder.

The cutter grinder shown in the illustrations has been brought out by its builder, the Walker Grinder Company, Worcester, Mass., for the primary purpose of meeting the new demand resulting from the advent of the gear hobbing machine as an important industrial factor. Gear cutter hobs are no more difficult to grind than other formed cutters, but the increased number in use and the continuous duty demanded of them call for better facilities for grinding, and for improved grinding methods that shall include cutters with both straight and spiral grooves. This grinder, known as the No. 2-K, not only meets this new field of usefulness, but includes im-

The details of the new belt drive are shown in Figs. 2 to 7, inclusive. Fig. 2 is a vertical section through the spindle, wheel post and housing, with the spindle in normal position. Fig. 3 is similar to the upper portion of Fig. 2, with the spindle tilted at a vertical angle of 45 degrees, while Fig. 4 is a top view of Fig. 2, with the spindle tilted and showing the alignment of the driving belt on the idler pulleys E and G. Fig. 5 is the same as Fig. 3, with the post and housing swiveled horizontally 90 degrees. Fig. 6 is a view of the left hand side of Fig. 5 and shows the alignment of the belt at one end of the overhead drum A. Fig. 7 is a diagram giving the position of the driving belt when the post B with its housing C has been horizontally swiveled 180 degrees from

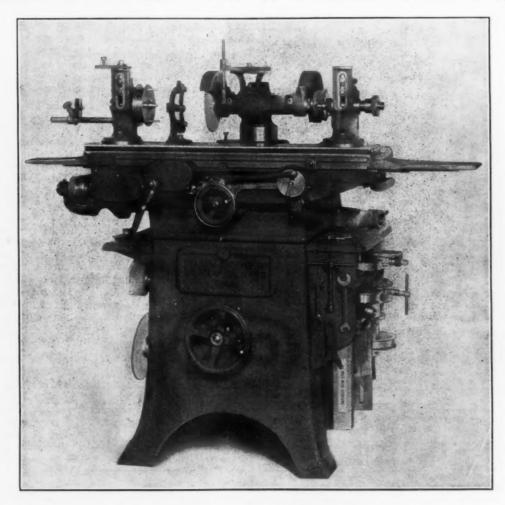


Fig. 1.-A New Machine for Grinding Spur Gear Cutting Hobs, Made by the Walker Grinder Company, Worcester, Mass.

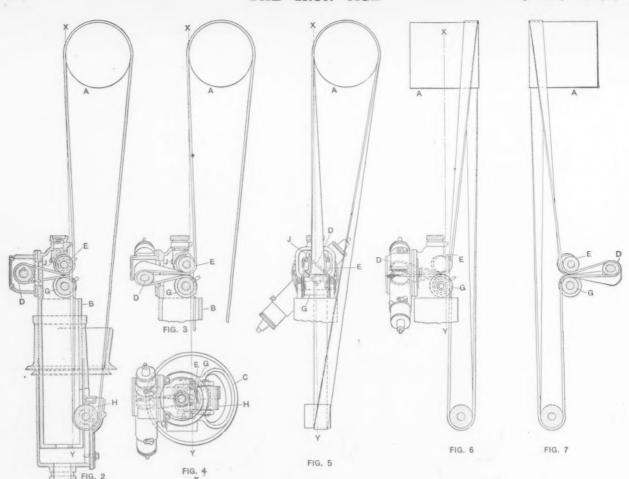
portant improvements on machines previously brought out by the company, in that a new positive clutch reversing mechanism for the platen has been installed and a power cross feed. The vertically tilting spindle belt drive has been redesigned on account of the greater frequency for its use in connection with a new method of sharpening gear cutter hobs, details of which will be given to the public at a later date.

A general view of the machine appears in Fig. 1. It will be noticed that shelves and racks for emery wheels and attachments have been added and that the machine comprises the good elements of previous models, including the arrangement by which the grinding head can be adjusted to any horizontal angle; the vertical adjustments, and the feature that in all of its various adjustments the driving belt runs with equal tension and tracks naturally upon the pulleys without crowding against the flanges

the position shown in Fig. 6; it will be seen that the driving belt has traveled to the opposite end of the drum.

The main support of the grinding head is the housing C, which has a horizontal swiveling adjustment on the top of the grinding bed, turning on the axis X Y, which practically coincides with the down leading side of the spindle belt, so that when the housing is swiveled as in Fig. 5 the belt will run with a quarter turn. This belt in leading to the spindle pulley D passes first around an idler, E, thence to the spindle and out again around the idler G and down to the lower idler H, whence it returns to the drum. Thus a horizontal loop is formed in the leading side of the belt, which provides for vertical adjustment without change in belt tension and also that when the spindle is tilted its axis is between the sides of the loop, so that the belt will run in a twist.

The natural course of the belt when the spindle has been tilted 45 degrees is shown in the plan view, Fig. 4, and



Various Positions of the Belt and Pulleys with Different Adjustments of the Grinding Wheel Spindle.

the elevation, Fig. 5. The former practice with the Walker grinder was to mount the two flanged idlers E and G on axes parallel to the horizontal adjustment of the spindle; it is evident that under such conditions, with extreme angular adjustments, the belts must run hard on the pulley flanges. In the improved construction the idler G is of a width greater than that of the belt, while the upper idler, E, though not increased in width, is journaled in a horizontal swiveling bracket, J, which is adjusted so that the central plane of the rotation of the

idler is toward the center of the rim of the spindle pulley D. The action of the belt thus becomes natural; it does not rub on the flanges. A further improvement is that the idlers are each mounted on a hardened steel spindle with projecting journals which run in boxes having hard bronze bushings, which are easily renewed. The diameters of the idlers and spindle pulleys have been increased and the whole grinder head has been made to withstand severer duty.

The details of the longitudinal and cross feeds are

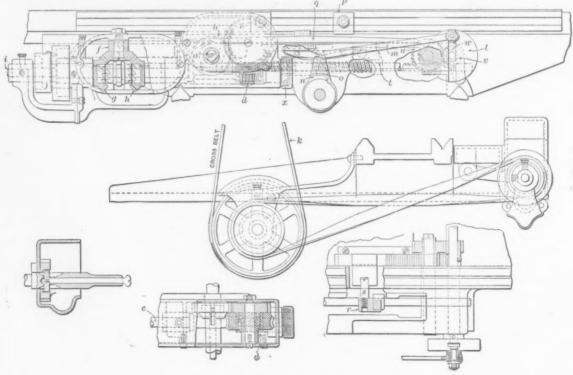


Fig. 8.—Details of the Longitudinal and Cross Feed Mechanisms.

shown in Fig. 8. The feed works are all mounted on the carriage, which is of the movable type, having transverse movement on V tracks. The platen is operated by means of a pinion on the shaft a, which is provided with starting and stopping clutch as heretofore. The clutch gear b is driven by the compound gear c, one member of which is a worm gear driven by the detachable worm d mounted on the reversing clutch shaft e. The improvement consists of the conventional bevel gear set f, g and h for reversing; the details of the positive clutch mechanism are clearly seen. The outer end of the clutch shaft i has been provided with an outboard bearing, bushed with hard bronze, and a step pulley, j, mounted on the shaft gives two speeds for the platen. The feed belt for this pulley passes under the end of the carrage to a second pulley mounted on a small jack shaft journaled in a covered hanger attached to the rear of the carriage. The initial feed belt k leads down to this shaft from the overhead works.

The cross feed is operated by the crank disk l through the medium of the connecting rod m, which oscillates the arm n around the cross feed screw as an axis. As the disk makes about one revolution each time the platen reverses, the rod m is given a forward and backward movement, operating the ratchet pawl o and giving a feed impulse at each end of the stroke. On the back side of the arm is mounted a second ratchet wheel, with teeth reversed, and a second ratchet pawl, not shown, attached to the same stem as o, is thrown when it is desired to give a feed in the opposite direction. The initial movement of the cross feed is obtained from the platen dogs p which move the slide q having a projection r carrying the stud s, which in turn operates the sliding rack t, the compound gear u and the pinion v on the shaft w, upon which is mounted the cross feed crank disk l. The connecting rod m is steel bushed to provide for wear, and the end wear of the longitudinal feed worm is taken care of by the cap nut x, which longitudinally adjusts the bronze bushing for the end of the worm shaft.

The overhead works are of the full multiple speed type, by means of which any desired speed between maximum and minimum can be obtained and in which there are no stepdowns.

Why the Railroads Are Waiting.

In a letter written at St. Paul, January 7, to the Board of Trade of Hoboken, N. J., James J. Hill discusses the conditions confronting the railroads. Some of his statements are familiar, but in the latter portion of the letter he points out that there are still some points on which more certainty is wanted before railroad expenditures will represent "a real return of prosperity";

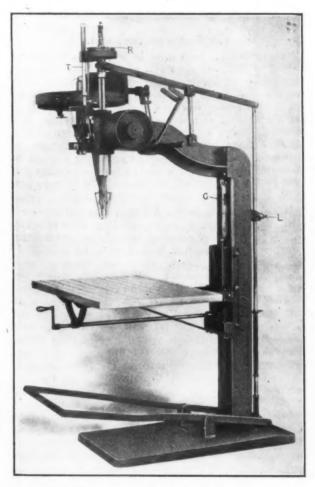
The railroad system of the country has been built up by individual energy working with capital that was invested because it expected a profit in the enterprise. Capital has ceased to be generally available for this work at a time when its co-operation is greatly needed. The return of prosperity to the transportation business and to all other business, since the connection between them is direct and intimate, is conditioned upon such a restoration of confidence as will again permit and promote liberal investments. And that will happen only when the public is convinced that capital put into railroad securities will have the same protection against unjust or unfair attack, the same right to earn a proper return, as capital invested in other occupations enjoys.

The country, in fact, is waiting to see what is to be the attitude of public authorities, legislatures, commissions and courts toward the railroad interest. It needs and asks no favors; it is entitled to fair play, and the capital employed in it to a reasonable profit. When this appears certain, and public policies are framed accordingly, not only transportation, but all other industry, will experience a real return of prosperity. The material welfare of the nation will be promoted by every expression of determination on the part of individuals and associations representing great interests to secure that just treatment and that security without which capital withdraws itself, every form of industry declines, and all the people suffer loss.

A Large Reynolds Power Screw Driver.

Although embodying the same mechanical principles that characterize the line of power, automatic screwdrivers made by the Reynolds Machine Company, Rock Island, Ill.—one of which was described in *The Iron Age*, July 9, 1908—the tool here shown represents the latest and largest size made by the company. This machine includes modifications designed to fit it for handling very large work, having a reach sufficient to set screws to the center of a 48-in, circle, and the table a range of vertical adjustment that will accommodate work 30 in. high.

As the screw is started the table is automatically raised by means of a cam, C, operated by a lever, L, extending through the column and connected to the vertical rod, which connects the foot treadle and spindle operating lever at the top of the machine. It will be noticed



The Latest and Largest Power Automatic Screw Driving Machine Built by the Reynolds Machine Company, Rock Island, Ill.

that the treadle by which the machine is operated has a wide spread, so that the operator may stand in front or at the side of the table, as is most convenient.

In addition to the usual features of the magazine feed, adjustable friction drive to the spindle, &c., common to the smaller sizes of this line, the machine has a positive stop for the spindle by which screws may be merely started or set to a certain depth with heads projecting to a uniform hight as desired. This is accomplished by extending outwardly the driven friction flange so as to extend over the driving flange, thus forming a male cone clutch surface on its periphery. A ring, R, concentric with the spindle and having a corresponding female surface, is arranged to slide vertically on the rod T, being carried upward by the arm, which operates the escapement cams, and follows the arm downward until arrested by a collar, which is adjustable on the rod. As the spindle continues downward the clutch surfaces engage, arresting the rotary motion of the bit; the friction flanges which drive the bit, being at the same time slightly separate, prevent undue wear. The first machine of this size was built for the United States Arsenal at Rock Island.

THE YEAR 1908 IN THE COPPER TRADE.

BY H. M. COLE,*

The American copper trade during the past 12 months has, in common with other industries, been undergoing a period of convalescence. The year followed one of the most remarkable periods of rise and depression ever known in the history of the red metal.

At the beginning of 1907 Lake Superior copper was commercially worth 24 to 24½ cents per pound, but in the convulsion of the latter part of the year—a convulsion which had its crisis in the month of October—the price receded below 14 cents, after having touched as high as 26½ cents. It was but natural that such extreme fluctuations should have thrown the industry into a state of chaos, and the holders of copper shares in a state of panic.

The Market for the Metal.

The excessively high price of 26½ cents, which was reached in 1907, was the result of competitive buying on the part of stampeded consumers, who, having taken orders months ahead for finished material, were thrown in a state of frenzy, fearing a famine in copper and their inability to cover such contracts with the necessary raw material. It can be said without fear of contradiction that the extraordinary high prices for copper were not the result of any effort on the part of producing interests to extort the last fraction of a cent from the consumers, but were, as above stated, simply the result of reckless purchases on the part of the consumers themselves.

When the panic broke, however, manufacturers received numerous cancellations, and they were suddenly confronted with large stocks of unconsumed copper, with a steadily receding market, both in price and volume, for their manufactured goods. Many manufacturers were obliged in the early months of 1908 to sell, at very low prices, manufactured articles made from 25-cent copper.

With the lesson of their 1907 excesses clearly in mind, the large consumers have followed a cautious buying policy during the past 12 months. They have with rare exceptions purchased nothing beyond their 60-day requirements. Knowing that the output of copper was very large and that after some of the larger interests had abandoned the effort to restrict output, the consumption was light, wire makers, rolling mills and founders were content to buy only from hand to mouth.

In the early months of the past year, when copper was selling between 12 and 13 cents, there was started an extraordinary outward flow of the metal to Europe. The foreign byers, who for months had withheld their purchases when copper was selling at above 20 cents, came into the market with a rush and absorbed thousands of tons at around 13 cents—not that they wanted the copper for immediate consumption, but they wanted it because it was cheap! They were willing to take a chance which their American competitors were loath to accept. The European manufacturer is traditionally a better buyer of copper than is the American manufacturer. The latter is prone to make his heaviest purchases on a rising market; the foreign buyer balks at high prices and waits.

The American Consumption.

During the latter part of 1907 the consumption of copper in this country had fallen to below 15,000,000 lb. per month, which compares with 60,000,000 lb. per month during the preceding 12 months. There has been since a recovery, so that it is generally figured that the consumption of copper in this country at the present time is about 30,000,000 lb. per month.

The largest consumers of copper—the American Brass, General Electric, Westinghouse and Western Electric companies—are at present employing not over 65 per cent of the capacity of their plants. This underconsumption in the face of an output of copper which is the largest this country has ever seen naturally operates against an aggressive buying movement, but it is the general opinion among those who speak authoritatively that we are

steadily expanding in the consumption, and that while perhaps the recovery from the low point of last year has not been as rapid as was to be expected, the process of improvement now going on, although slow, is nevertheless, a steady and persistent one.

Just prior to and immediately following the Presidential election the American manufacturers re-entered the market in more vigorous style than they had done for the whole year, and in November purchases for home consumption totaled at least 100,000,000 lb. and the price advanced to 15 cents, although at the latter figure a very small tonnage was contracted for. The overwhelming Republican victory, however, did much to improve sentiment—and sentiment is a factor never to be disregarded in any analysis of business—but it cannot be denied that there has been a shade of disappointment at the slowness with which the individual consumer has recovered from the shock of 1907. At this writing there is a natural quietude in the market incident to the period of the year.

The Export Movement.

During the past 12 months the foreign visible supply of copper—the amount registered in public warehouses in Great Britain and France- showed such an increase as to alarm quite seriously the holders of copper shares. On December 15 this visible supply stood at 53,634 tons, or an amount exceeding 110,000,000 lb. This supply, greater than for many years, was taken to indicate that the American excess of production over American demands had been shipped abroad and seriously menaced the price of the metal. This foreign visible supply does not include the stocks in the hands of manufacturers, and is but an illustration of the extraordinary buying on the part of the European merchants and dealers when they were convinced that, measured by the cost of production, the metal was intrinsically cheap at between 12 and 13 cents per pound.

Had it not been for the extraordinary exports it is difficult to measure the results on the price of copper of our heavy overproduction. In the last 14 weeks of 1907 over 200,000,000 lb. of copper were shipped to Europe and the Far East, and up to March 14 last the enormous total of 355,000,000 lb. had left the port of New York alone for Europe and Asia since the first day of the year—breaking all previous records.

A good sized export movement continued throughout the latter half of 1908, the 11 months for which statements have been published showing that over 271,000 gross tons had in that period left this country, which exceeds by 24,000 tons the largest preceding calendar year—1904—and compares with 228,185 tons exported in the entire 12 months of 1907.

Appended hereto are figures showing in detail the exports of copper from this country in the past 12 months, the figures of December being estimated:

Exports of Copper by Months

	1908.	1907.	1906.
	Pounds.	Pounds.	Pounds.
January	68,462,560	38,178,560	34,287,680
February	55,193,600	20,549,760	35,394,240
March	48,912,800	24,587,680	36,809,920
April	81,392,640	38,893,120	36,579,200
May	50,713,600	20,240,640	43,142,400
June	67,197,760	36,892,800	41,740,160
July	39,961,600	31,443,760	41,023,160
August	58,029,440	30,145,920	45,769,920
September	43,518,720	38,431,680	31,626,560
October	49,194,880	65,320,640	39,262,720
November	45,439,665	76,354,880	41,330,240
December	40,000,000*	82,956,160	32,155.200
Totals	648,017,265	511,134,440	460,230,400

^{*} Estimated.

The Import Movement.

Imports of copper have been somewhat below those of the two previous years, but were considerably heavier in the last quarter of the year than in any previous quarter, showing a marked tendency by other countries

^{*} Of the Boston News Burcau.

to ship to the United States. Following is a table showing the imports for the past three years:

Imports of Copper by Months.

	1908.	1907.	1906.
	Pounds.	Pounds.	Pounds.
January	16,352,000	23,968,000	16,912,000
February	19,264,000	21,952,000	18,435,200
March	14,336,000	28,448,000	22,310,400
April	16,352,000	25,177,600	17,203,200
May	7,392,000	26,454,400	19,678,400
June	13,664,000	20,496,000	19,936,000
July	15,008,000	30,464,000	19,084,800
August	17,920,000	21,504,000	18,681,600
September	17,920,000	18,144,000	18,222,400
October	28,448,000	21,280,000	23,856,000
November	20,200,000	18,592,000	21,392,000
December	20,000,000*	14,560,000	18,704,000
Totals	206,856,000	271,040,000	234,416,000

^{*} Estimated.

The Production of Copper in North America.

It is now apparent that the copper output of the North American Continent in the year 1908 amounted to fully 1,100,000,000 lb.; these figures include Mexico and Canada. At the present time the production is on a scale greater than has ever been reached before in the annals of the copper industry, and it requires no great prophet to predict that unless there is a great expansion very soon in the consumption or a restriction in the output, the price cannot advance unless artificially stimulated. In attempting to state the production of copper it is possible only to deal in estimates, but those of the Boston News Bureau—which carefully compiles statistics of this nature—are reproduced herewith for the past three years:

Production of Copper in North America.

1908.	1907.	1906.
Pounds.	Pounds.	Pounds.
January 65,900,000	84,935,143	97,296,400
February 65,036,750	85,278,160	89,205,800
March 79,105,704	102,495,230	96,480,081
April 87,582,805	96,567,700	98,044,800
May 90,880,300	98,500,000	103,800,000
June 79,431,725	96,123,030	101,666,900
July 92,109,000	98,623,870	99,270,970
August 99,048,700	93,298,107	102,593,034
September102,509,125	68,388,800	97,962,000
October106,614,000	67,739,200	98,775,240
November	62,109,575	97,007,500
December107,081,316*	61,131,760	90,147,370
		_

Twelve months..1,080,000,000* 1,015,000,000 1,172,256,695

These figures, which embrace the principal producers of the United States, Canada and Mexico, are particularly valuable because they emphasize the fact that during the second half of 1908 the output has been at a rate never exceeded, in the face of a consumption below the normal on both sides of the Atlantic and in the face of the fact that in Europe consumers have ample supplies and a good deal of copper is being carried speculatively. The only redeeming features are that our home consumers are admittedly bare of stocks and that the supply of old copper throughout the world was thoroughly cleaned up during the high prices of 1907.

So far as the production of copper in the United States proper during 1908 is concerned, the best estimate available is that of L. C. Graton of the United States Geological Survey, whose statistics bear evidence of close knowledge and great care. He places the production of blister and lake copper in 1908 from ores mined in the United States as greater by about 50,000,000 lb. than that of 1907, when it was 868,996,491 lb. This would make it 919,000,000 lb.

The New Copper Camps.

Unusual interest has been centered in the ability of the new copper camps to make good. An avalanche of new supplies had been forecasted by the prophets of disaster, which they said would surely pour on the market as soon as the Utah Copper Company and the producers of Ely, Nev., began to ship their product to the Eastern refineries. The Utah Copper Company, in Bingham, Utah, has made good, and it is to-day making a production of about 4,000,000 lb. of copper per month, at a cost of between 8 and 9 cents per pound. It has been the

largest individual factor in the new copper production of the past year, but there has been no avalanche.

The mines of Ely—the Nevada Consolidated and the Cumberland-Ely—have but begun to ship ores to the big new Steptoe plant, but during 1909 it is not unreasonable to expect that Ely will turn out between 75,000,000 and 100,000,000 lb. of new copper. Here again the cost, as estimated by those influential in the management, is not expected to exceed 9 cents per pound, and may be considerably less than this figure. The ability of the new Bingham mines and those of Ely to make good the claims of those who are predicting an ultimate 8-cent cost for these properties is watched with the utmost interest. Some investors are disposed to turn from the high cost mines to the shares of those properties which have demonstrated their ability to live and pay dividends on 12-cent copper.

The Cost of Production.

The cost of making copper during the past 12 months has been materially less than in the year 1907, when It was but natural that extravagant and wasteful methods should accompany the extraordinarily high price for the metal itself. There was great difficulty in 1907 in securing efficient miners—they were autocratic, and in many cases returned but 5 hours' work for 8 or 9 hours' pay, and even this work was feeble and of the poorest quality. Since the panic, however, there has been a gradual weeding out of the drones, and it has been possible, by reason of a larger supply of labor, to make a selection of the best men and to keep those who were employed under the constant fear that unless their work was up to standard their heads would come off. These factors, combined with a curtailment in construction expenditures and a slightly lower cost of materials and supplies, have resulted in reducing the cost of output in this country at least 1 cent per pound.

The Butte mines of the Amalgamated Company are to-day making their copper for an average of 10 cents per pound. The Lake Superior mines are doing much better than heretofore as to costs, and the same may be said of the big Arizona producers. Never before in the history of the industry has there been such a careful scrutiny of the operating account.

It is true in all of the great copper camps in this country that with depth there has been a lower copper content in a given tonnage of ore. The mines of Butte and those of Lake Superior are reaching great depths, and only by the introduction of the latest machinery and the treatment of the largest possible tonnage is it possible to produce such operating economies as will offset the declining copper values in the ore treated.

The Copper Producers' Association.

As this review is written, it develops that steps have been taken by the largest producing interests in this country to rehabilitate the old Copper Producers' Association which formerly had its headquarters in the office of the late John Stanton. At a recent meeting in the office of Phelps, Dodge & Co., New York, there were present representatives of interests producing at least 90 per cent. of the copper products of this country. A committee of three was appointed to select a statistician to collect data once a month on output, &c., and to collect information of general interest to the industry. The conviction is that trustworthy statistics, freely published, would do much to prevent wild fluctuations, such as those of the past two years which have done so much to unsettle the consuming trade.

It can be said in the most emphatic terms that the suggested organization has no thought of attempting to control by a gentlemen's agreement or otherwise the output of the metal or to force any agreement as to the maintenance of prices. It is to be hoped that in the evolution of this progressive and far-sighted policy of publicity it will be possible to secure the co-operation of the large consuming interests who will, in return for the information they receive from the producers, make known at the same time conditions in the manufacturing trade, stocks on hand and the extent to which new orders are coming forward.

^{*} Approximately.

The Distribution of Copper Shares.

Never before has there been such a wide distribution of shares in copper mining companies as followed the panic of 1907 and the early part of 1908. Those who had money took advantage of the necessities of those who were compelled to liquidate and bought copper shares in big lots and in small lots, paid for them and stowed them away in their safe deposit vaults. It was only this extraordinary distribution of copper shares in the hands of the public that made possible the astounding recovery made in copper share quotations during the past year from the low level of the preceding 12 months.

The Boston News Bureau, in one of its many compilations of a similar character, showed in July that the prices of 19 prominent copper stocks had appreciated all the way from 25 to 201 per cent, from the preceding low level. In November there was a veritable copper share boom on the Boston Stock Exchange, following an advance in the metal.

It is but natural to expect that there should have been a heavy shrinkage in the amount of dividends paid on 14 cents copper as compared with the extraordinary profits on a 25 cent market. In July last, 20 copper stocks were disbursing dividends at the rate of \$14,510,000 per annum, against \$43,706,966 prevailing at the corresponding time a year before.

It is quite probable that the average cost of producing copper in this country to-day is somewhere between 10 and 11 cents per pound; it exceeded 12 cents per pound in the year 1907.

Conclusion.

The next 10 years will be years of extraordinary activity in all that pertains to copper. The casual observer, if he keeps abreast of the times, has only to look about him to witness the tremendous strides which are being made in the use of electricity as a motive power. The great water powers of the country are being harnessed, and our great railroad systems must sooner or later face the necessity, irrespective of the question of operating economy, of substituting the electric locomotive for the steam engine.

This is the electrical age and electricity means copper. Copper mines are not made in a day. The successful ones represent the expenditure of many millions in underground development and surface equipment before they approach the stage of giving back to the original investor a fraction of the sum which he has planted therein.

There are few, if any, industrial propositions which hold out the same degree of promise which is vouchsafed by the conservatively managed copper mines. While for the moment the output is running ahead of the consumptive demand, this condition is purely transitory, and a recurrence of the heavy buying of two years ago is entirely possible when once again the great electrical and manufacturing interests operate their plants to full capacity.

Great as have been the achievements of copper in the past, a still greater future awaits us.

The report that the Canada Iron Corporation, Ltd., Montreal, Canada, has purchased the car wheel works of the Thatcher Car Wheel Company, at Albany, N. Y., is erroneous. J. A. Kiipatrick, manager of the corporation, has leased part of the Thatcher property, and is organizing a new company which will be known as the Albany Car Wheel Company to operate the plant. Within the next three or four months, or as soon as the plant can be overhauled and put in shape, it is expected that the new company will begin operations. The Albany plant will have no connection whatever with the Canadian interests of the corporation above named.

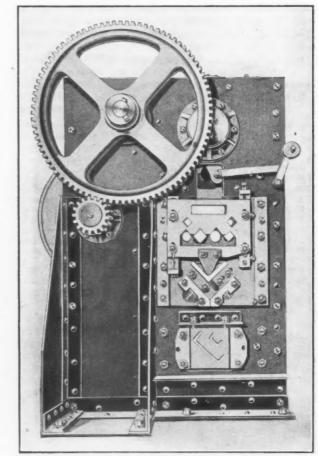
The Kro-van Steel Company, Pittsburgh, has been organized and an application made for a Pennsylvania charter, with a nominal capital. The incorporators are Michael B. Kelly, James P. Kelly and Emanuel Kaufman. The new company proposes to manufacture iron, steel, copper, aluminum, chromium, vanadium and their

alloys, to manufacture sheets, bars, forgings, plates, castings and shapes made of these metals and their alloys, and to be known as the Kro-van steel products.

A Pels Structural Shape Shear.

The practice of shearing bar stock, flats, angles, tees, &c., on the ordinary type of throat shears, where a special set of knives is required for each section is open to objection in that considerable time is lost in changing and setting knives. With aggravating frequence it is found that when there is an angle or flat to be sheared the knives for rounds are in the machine, or vice-versa. Henry Pels & Co., 90 West street, New York City, are now placing a shear on the market which does not have this disadvantage. The illustration shows their type R. E. F. F. shear, designed to shear rounds, squares, flats, angles and tees without change of knives, and a separate head is furnished for shearing I-beams and channels.

Referring to the engraving it will be seen that the machine has openings to accommodate work of various sections. Above and below these openings are tool steel



A Shear for Cutting Bar Stock and Structural Shapes, Built by Henry Pels & Co., New York.

knives from ¾ to 2 in. thick/and from 10 to 24 in. square, varying with the capacity. As allowance is made to adjust for wear, the life of the knives is very greatly extended. The female knife is firmly fixed in the frame of the machine, and the pressure is applied to the male knife, which moves in a long adjustable guide, actuated through an eccentric by a plunger. With this construction the frame plates have only the tensile strain to withstand.

The frame of this shear, as in all other machines built by this company, is of steel plates, and is guaranteed to be unbreakable. As all working parts are forgings and gearing of semisteel, the shear appears to be as near indestructible as it is possible to make it. Another point is the saving in floor space, this shear requiring 50 per cent. less, it is claimed, than any shear of the same capacity with a cast iron frame and the weight is also proportionately less. Of this particular machine the special advantage is the ability to shear any section at any time.

A Carlin Skull Breaker Equipment.

For breaking steel furnace bottoms, salamanders and large castings, the Carlin Machinery & Supply Company, North Side, Pittsburgh, Pa., furnishes equipments of which the illustrations, Figs. 1 and 2, are typical, these representing installations made for the Crescent Blasting Company. Fig. 1, the line drawing, shows in outline a contractor's type of boom derrick and a tripod or three-legged drop derrick handling a 1500-lb. ball or drop. In the plan view the tripod derrick shown is located 36 ft. from its center to the center of the boom derrick. The latter is used to serve the drop and for certain classes of work where the metal is too thick to break with the drop. The derrick in such cases unloads the material from cars or from the storage pile, and after it has been drilled, deposits it within the cribbing, where it is broken by the use of high explosives. The cribbing, covered by an old blast furnace bell, serves to prevent the material when broken into fine pieces from being scattered.

With this combination a special compound geared single friction drum Lambert hoisting engine operates the drop alone. This engine on its intermediate shaft has a spool or cat head, which can be used for moving cars, dragging material, &c., and a regular contractor's type of double friction drum engine operates the boom

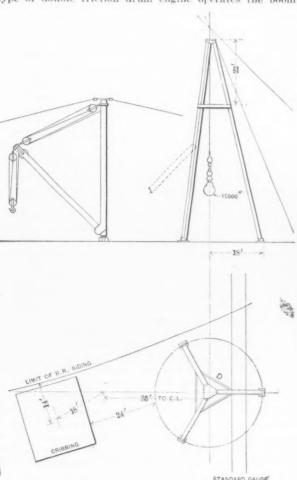


Fig. 1.—Elevation and Plan of a Carlin Casting Breaking
Equipment Using Two Derricks.

derrick, one drum for raising the load, the other for raising the boom, thus changing the swing or reach of the derrick.

In the more modern plants furnished this company the boom derrick is done away with, the tripod derrick performing all the work of breaking and loading the material by means of a special Lambert hoisting engine. This engine is of the double cylinder type, of 40 hp., triple geared, and has two friction drums, one for raising the drop and the other for loading the broken material. The main or hoisting drum is capable of lifting 18,000 lb. on a single 1½-in, wire rope. A standard gauge railroad track passes under one of the legs of the tripod.

A car running on this track brings the unbroken chunks within the reach of the derrick, where they are unloaded piece by piece by the rope used for the drop, and if necessary the second drum has its line fast so that the material cannot swing and put undue strains on the derrick. After the car is removed the piece is broken and the small parts are loaded into a steel scale or box, hoisted by the drop line and pulled sidewise by the swing line over the car on the track, in which it is then removed. A cat head or spool on the engine can be used for moving the car.

It is claimed that this method of breaking is very much faster than any other in use at the present time,

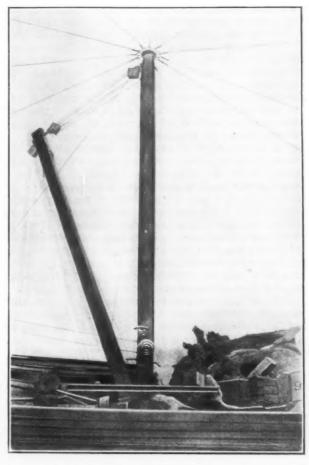


Fig. 2.—A Carlin Single-Derrick Equipment at the Crescent Blasting Company, Monongahela, Pa.

and that the first cost of the plant is less than where a derrick or crane is used to serve the breakers. The installation referred to is the third one which has been made in the last year and a half.

The second or swinging drum of the engine has a capacity of about 12,000 lb. The engine has $8\frac{1}{2} \times 12$ in. cylinders and is geared about 25 to 1. The main drum is 32 in. in diameter and the swinging drum is 30 in., with frictions and brakes of such proportions that they are capable of lifting and sustaining the load under the full control of the operator.

The Crescent Blasting Company operates plants of this character in various parts of the country, and it is reported that the outfits they are using have given excellent satisfaction.

Fig. 2 is from a photograph of one of the derricks taken at the Crescent Blasting Company, near Monongahela, Pa., which simply shows a single derrick, one of boom type, as used to serve a blasting pit. The pit for blasting is shown at the right in the engraving. There is also shown a Dallett portable drill, rope driven, which is used for drilling steel and iron when blasting is to be done.

A new expanding mandrel will shortly be placed on the market by the McCrosky Reamer Company, Meadville, Pa., which, it is claimed, represents the most advanced development in a tool accessory of its character.

Russian Iron Trade Conditions.

The Proposed Pool of the South Russian Iron Works.

BY A RUSSIAN CONTRIBUTOR.

In view of the fact that this pool is still "in the air," owing to the almost insurmountable difficulties which the promoters are encountering, it might be of interest to those connected with the American industry to know the whole history of the affair.

Works Dependent Upon Government Orders.

In the days prior to the attempt on the part of certain firms to bring about the amalgamation of all the South Russian concerns, the majority of the firms were almost entirely dependent upon the Russian Government for their very existence. As factors in the world's manufactured iron trade, their influence was almost nil; not that they made no effort to enter the foreign markets, but because they always met with all kinds of obstacles, the chief of which was the fact of so much of the Russian ore being exported abroad instead of being manufactured at home. For instance, in 1906 the quantity of iron ore produced in the districts of Ekaterinoslav, Upper Dnieper, Kherson and Alexandrisk was 3,454,911 tons, of which 482,239 tons were exported to the United States, Great Britain and the Continent. With regard to manganese ore, according to a report of the Mining and Metallurgical Union of the south of Russia, the total world's production of a quality such as is obtainable in the Caucasus during the last three years averaged 870,-969 tons per annum, while in the year 1903 about 435,-484 tons were exported abroad from the Caucasus alone, or exactly half the quantity required by the steel industries of all countries excepting Russia.

This was, and is, a serious matter for the South Russian iron works, so much so that the Donetz-Juriev and the Russo-Belgian companies approached the Ministry of Trade and Industry and urged a duty on Russian ore exported of 10 copecks per pood. The imposition of such a duty would, it was stated, considerably diminish the export and afford greater facilities to the native works of increasing their production of ferromanganese for shipment to foreign markets, on which far better prices could be obtained than on the raw material. The price of manganese ore at Poti in 1906 varied from 21 to 22 copecks per pood, or about \$10 a ton, whereas ferromanganese brought as much as \$50 per ton on exportation.

Secret Agreement to Divide Government Orders.

As there are about 50 blast furnaces in the South Russion region, and the Government was unable, owing to internal troubles, to place big orders, the manufacturers were in a pretty bad way. Therefore, the first step in the matter of forming a combine was made between the various firms when they came to agreement in respect to the execution of Government contracts. It was agreed secretly that each such contract should be split up so that all the concerns participating in the agreement should be kept continually at work.

That such an agreement was unavoidable cannot be gainsaid, for no single firm could depend upon receiving one Government contract after another. The results of this agreement, however, it would seem, were not satisfactory, for the Government, being obliged to retrench in all directions, the share received by individual concerns was not large enough to make the execution thereof a profitable undertaking. Then came a rupture. The larger firms, feeling that they could always obtain the Government contracts, wanted to withdraw from the agreement, but the smaller firms, who had probably saved themselves from bankruptcy by entering into this secret combine, were naturally not in favor of dissolution.

Reaching Out for Foreign Markets.

Matters, so to say, muddled along until 1905-6, when the troubles in the Caucasus broke out, which made the business of effecting shipments from Poti very difficult, a circumstance that was favorable to the south Russian ore producing districts. Matters were further improved by the springing into existence of a foreign demand for ores. Good prices were obtained for ferromanganese, and the south Russian firms entered the markets, with the result that some 20,000 tons were exported. Of this quantity, 12,157 tons were shipped through Mariupol to the United States, the Continent and Great Britain. Of the remainder, about 6000 tons were shipped through Odessa during the winter months. The balance went to Germany and Austro-Hungary by rail. These works also shipped 7865 tons of steel rails to Haifa, and large contracts were concluded for completion in the following year. Rails aggregating about 14,000 tons were sent to the Roumanian railroads, while the Nicolaieff Shipbuilding Works and the South Russian Dnieper Metallurgical Company received orders for about 15,000 tons of steel rails, at the rate of 165 francs per ton, for the Italian State railroads. Further quantities of rails went to Argentina, while girders, merchant iron and iron and steel plates were shipped to Egypt, Syria and the Balkan

Unfortunately, however, the boom in the iron and steel trades observable in other countries had little effect upon the Russian industry, and many works were forced to seek new markets. With this end in view endeavors were made to create an export trade, and several works in the Donetz Basin obtained some good contracts. It is true that the prices obtained left little margin for profit, but the increased business saved administrative expenses for the manufacturers and so permitted them to keep down the cost of production for the home market.

Favors Desired by the South Russian Works.

This stepping out into the world's markets taught the Russian concerns a lesson, and the idea in favor of the pool became stronger than ever. They learned that under existing conditions they could not possibly compete in the foreign markets. They must demand and obtain:

- (a) A Government bounty on all stock exported.
- (b) A reduction in the railroad rates and port dues.
- (c) A reduction in the cost of handling the goods at the ports, which, through the shallowness of the harbors preventing the loading of large ships except by means of lighters, is enormous.
- (d) A limit being placed upon the exportation of Caucasian ores by means of the imposition of an export duty, as referred to above.
- (ϕ) An advantage of the Ural mining and smelting districts.

To obtain such concessions it was necessary to be powerful, and the only way to be powerful was to combine. The movement was therefore made, and the Government was approached.

Obstacles to These Demands.

Should the above demands (and others) be granted the South Russian pool would be in an unassailable position. There are, however, many arguments against and obstacles to these demands, and they are:

- (a) The Russian Government is already saddled with bounties which are proving expensive and, at the same time, useless. The sugar bounty is an example to quote. To allow a bounty to the south Russian concerns would be to invite demands from the Ural Mountain and Siberian industries. In short, there would be no limit to the demands of this nature.
- (b) The Government railroads are already run at a loss, in spite of the fact that they are worked to their utmost. If the Government reduced railroad rates it would have to increase the traffic, and to do this would mean great expenditure on additional rolling stock. Of course, everybody in Russia agrees that the Government railroads are in a chaotic state, and improvement in every direction is needed. To effect these improvements so as to allow the reduction in freight rates would entail the spending of an enormous amount of money which the Government does not at present possess. Practically, the only thing that the Government can do at present is to increase the rolling stock, but in view of the fact that the existing systems are single line roads, whereon with the present volume of traffic there is absolute confusion, it does not require a great deal of thinking to surmise that

great trouble will result if the roads are overloaded by additional rolling stock. Many will argue that the roads are not so overloaded, but, if this be the case, how is it that it takes almost five weeks to transport goods from St. Petersburg to Odessa? The only way in which freight charges can be reduced is to double the roads, but this is impossible owing to the present state of the exchequer.

(c) To carry out improvements in all the ports suggested by the pool would also entail an enormous outlay of money, which, as in the case of the railroads, cannot easily be found. Of course, at some time or another such improvements must be made, but the work must be carried on gradually. The gradual improvements would, however, run into a period of years, and this naturally will not suit the pool. It must be remembered that Russia is not America or Great Britain, where there is much trade with plenty of ready money. Russia at the present time is still years behind any other nation, and we must not therefore expect so much from her as we do from other nations. There are, of course, plenty of foreign syndicates who would be glad to make these improvements on their account, but it would not pay them, being forced, as they are, to use home materials and labor. Besides, it is doubtful whether any but very large and rich syndicates could undertake the work without assistance from the Government, but as the returns would not be realized under a very lengthy period, such firms would hardly attempt the business, the more so seeing that they can obtain better contracts elsewhere.

(d) With regard to imposing a duty on Caucasian ore exports, it is a great question as to whether the South Russian concerns, and the Donetz-Juriev and the Russo-Belgian companies in particular, are not a little jealous of the Caucasian firms because the latter are owned mostly by foreigners (mainly British). Whether this may or may not be the case, it is plain that these foreigners are as much a source of revenue to the country as are the South Russian concerns, and therefore they should not be hindered in their work. As it is, the Caucasian industries, through strikes and political disturbances, have suffered to a great extent of late, and any restrictions of a nature such as is proposed, for instance, by the Donetz-Juriev and the Russo-Belgian companies, will absolutely depress the whole region. If anything, the Caucasian industries deserve more sympathy than the South Russian concerns, for from beginning to end they are hampered in every way. The excessive railroad rates (they are \$4 per ton per 120 miles) charged by the State railroad for the transport of the ore along the narrow gauge railroad between the mines and the station of Shoropan, the insufficiency of the rolling stock, in consequence of which nothing like the quantity necessary for the constantly increasing demand can be exported from Russia; the bad port conditions at Poti, which necessitate boats waiting as long as a month to take up their berths for loading cargo, and, lastly, the high wages paid to the laborers who load the vessels (these men get from \$1.50 to \$1.75 per day, which is a very high figure for Russia), all tend to restrict seriously the whole trade.

(e) Industry is rapidly increasing in the Ural District, a circumstance which is due to the close attention given to this part of Russia by British capitalists. In fact, the south Russian people are cognizant of the fact that in time the Urals will sweep all before them, and hence the desire for legislation to restrict the annual output. Money is flowing into this part of the world in enormous sums, so great is the faith in the possibilities of the region. It would be as well to give a few details concerning the present state of affairs in the Urals, for they will show that the fear of these districts on the part of the south Russians is well founded.

Great Future for the Ural District.

It is a well-known fact that the resources of the Urals are unlimited, and development is needed to make that district one of the greatest ore producing, smelting and iron manufacturing centers in the world. That things are being developed is apparent when we read and know of the many companies that are being formed in London and Russia, some of which are already success-

fully working and producing excellent goods. There is, for instance, the Kyshtim Corporation, which has just been formed in London with a capital of about \$5,000,000. This corporation will have under development miles upon miles of land, rich in all kinds of metals. In the case of the Kasli Works, which come under the control of the corporation, there are indications of a wonderful future. The Kasli art castings already have a world-wide reputation, and the ordinary castings have no equal on the market. Even the attempt on the part of several other Ural concerns, as, for instance, the Upper Ufaleyskey, Bros. Klakazoff, and others, to compete with the Kasli Works have proved unsuccessful.

Another powerful concern is the Krovlija Company, which incorporates the Simsky and South Karma works. This company can produce some 11,000,000 or 12,000,000 poods, or almost 70 per cent., of the total manufacture of iron roofing in Russia, which means that even if the south Russian concerns had the rest of the production between them, which is doubtful, they can produce no more than 30 per cent., or thereabout, of the total amount.

From the above details we draw two conclusions, which are, 1, the Government would be crippling one of the finest of the Russian industries by introducing legislation of the nature as suggested by the south Russian firms, and, 2, the Ural concerns are strong enough to hold their own at present, and later on will be in a position to dictate terms to their friends in the south of Russia. If it is a question of the fall of one of the two districts—i. e., the south Russian and the Urals—it is evident that the south will have to go, and for the following reasons:

To develop properly the resources and trade of the south large sums of money must be forthcoming in the way of furnishing bounties, improving the railroads, ports, &c., as mentioned above. All this, we have before stated, under the existing conditions, is impossible.

On the other hand, the Ural District will develop without Government aid in any shape or form. The concerns are well capitalized, labor is cheap, the railroads are in good order—that is, they are not so blocked up as is the case in the south—and the Baltic ports, at which the ores and iron for export will leave, are in good condition, and quite easily able to cope with the increased traffic.

Now the Government has to choose between the two districts, but it is plainly evident, if there be impartial judgment, that the Urals must not be sacrificed, and unless they are sacrificed in order to meet the demands of the south Russian concerns, the latter must go by the board or work out their salvation themselves. This question, being as yet undecided, is the greatest obstacle to the formation of the south Russian pool, and until it is settled one way or the other matters must remain at a standstill. The whole matter is now before the State Duma, and the decision of that body is being eagerly anticipated by all parties concerned.

The Gary Works of the Indiana Steel Company, Gary, Ind., have not yet begun to roll steel rails, despite the reports published in the daily papers of last week. The only foundation for the reports was the fact that a few steel ingots had been taken to Gary from the South Works of the Illinois Steel Company for the purpose of testing out the rolls of the rail mill, but no attempt was made to roll a finished rail. Further tests of the rail mill will be made from time to time, but it will be from four to six weeks before any regular rolling will be done.

Among recent car orders are 2500 hopper cars by the New York Central lines; 500 gondolas, 400 box cars and 100 coke cars by the Louisville & Nashville in its own shops; 200 steel underframe refrigerator cars by the Armour Car Lines in their own shops; 200 beef cars by the National Car Line; 100 poultry cars by the Lemac Carriers Company, Chicago. The Railroad Age-Gazette reports the above, as well as the inquiry of the Northern Pacific for 600 box cars.

The Oxygen Melting Process.

Its Use at Blast Furnaces and Steel Works for Removing Metal Obstructions.

The oxygen melting process, of which Dr. E. Menna of Creuzthal, Germany, is the inventor, has been brought to the attention of blast furnace and steel works managers in this country recently through an interesting series of tests. Among the most troublesome and expensive of disturbances at such works is that resulting from a chilled taphole or blast tuyere. Sometimes days and in instances weeks of delay result before the furnace can be restored to its normal working conditions after such a stoppage. To have at hand the means of freeing the chilled masses and allowing the blast to enter at the right time and the iron to be tapped is an advantage which can be appreciated by those who have had experience with an obstinate case of freezing. The demonstrations which have been made at various plants in Pennsylvania and Ohio show that by the use of the oxygen melting process the chilled iron at a blast furnace taphole which sometimes has a depth of 3 ft. or more, can be pierced in a few minutes and the furnace kept in normal operation. The process consists in brief in a preliminary heating of the chilled mass at one point, to the temperature of combustion, by the use of a gas flame and subsequently melting the iron by a blast of oxygen. The oxygen being under high pressure removes the molten masses at the same time. The apparatus, as is shown in the accompanying illustrations, consists of a cylinder of compressed oxygen, a cylinder of coal gas and the necessary tubing and pipe for conveying these and applying them to the chilled mass. It has been shown that a chilled blast tuyere or cinder notch can be opened without any destruction of the tuyere, since the blast of oxygen has no effect upon copper. The tuyeres are thus enabled to resume their normal functions in a few minutes

At Pottstown, Pa., November 20, 1908, Dr. Menne gave



Fig. 1.—Beginning of the Operation of Opening a Chilled Tap-Hole.—Preliminary Heating of Chilled Mass with Coal Gas.

a demonstration of his process on steel billets. While this was in progress information came that the taphole of one of the Warwick Iron & Steel Company's blast furnaces could not be opened, though a gang of men had been drilling it for $1\frac{1}{2}$ hr. The chill had extended to a depth of 4 or 5 ft. The oxygen blast was employed and by the use of 50 cu, ft. of oxygen the taphole was opened in 4 min.

At the Central furnaces of the American Steel & Wire Company, Cleveland, Ohio, where a demonstration was made December 30, 1908, the tap hole at No. 5 furnace was found to be chilled. After the operating force had worked on it for more than an hour and a steel bar which had been used for hammering was fast in the tap hole so that it could not be removed, the oxygen melting apparatus was brought into requisition. In 105 sec. by the use of something less than 50 cu. ft. of oxygen the molten metal was started running. It was estimated that the chill extended to a depth of 4 ft.

Figs. 1, 2 and 3, reproduced from views taken at a blast furnace, show the operation of opening a chilled taphole in its three stages. The time required for the first application of the gas for heating was 1½ min.



Fig. 2.- One Minute Later Than Fig. 1.—The Operation Vigorously Under Way,

It is found that cast iron is not pierced by the action of the compressed oxygen blast unless it has been previously heated through. This fact and the vigorous manner in which the chilled material at a blast furnace taphole is attacked confirm what repeated analyses have established—namely, that the accumulated metal in the case of a frozen blast furnace tuyere or taphole is not cast iron, but steel. The chemistry of its production under the conditions referred to has been an interesting subject of discussion among blast furnacemen.

It can be understood also that the use of compressed oxygen in preventing delay in tapping an open hearth furnace may prove of great value, as when the liquid metal has reached the desired content of carbon and other elements no delay should occur. The change in composition which often results from inability to tap

promptly may make the steel useless for the purpose desired. It sometimes takes a gang of men using a crane for ramming purposes from 10 to 12 hr. to overcome the troubles resulting from the ordinary method of relief where metal is held up after being ready to pour. In a demonstration recently at a plant in the Pittsburgh District it was shown that the obstruction at an open hearth furnace taphole consisting of a mixture of steel, slag and magnesite, can be removed in 12 min.

Other applications of the process in steel works are



Fig. 3.—One Minute and a Half After Fig. 1.—Iron Breaking Through the Tap-Hole.

the cutting of cobbles, sinking heads on castings and the removal of all projecting metal where the use of a saw or other tool is impracticable. An illustration of the use of the process in cutting is given in Fig. 4. The piercing of steel plates is also readily accomplished by this apparatus. An armor plate 18 in. thick, at the Carnegie Steel Company's Homestead works, was pierced in 1 min. While comparatively new in the United States, the process is well known in Europe and has been in regular use at many steel works there, something over 100 licenses having been taken out. The basic patents are of 1902 date, but the introduction of the process has been delayed in the United States owing to the lack of oxygen under high pressure. Since compressed oxygen is now manufactured on a commercial basis in large quantities in this country, the way is open for a general application of the Menne process to blast furnace and steel works operations.

F. H. Kindl, consulting engineer, 411 Bakewell Building, Pittsburgh, is the representative in the United States of the Cöln Müsener Bergwerks Actien Verein, which is the owner of the Menne process.

The initial number has appeared of *Industrial Prog*ress, a monthly publication, issued from 330 Clinton street, Milwaukee, Wis. It contains articles reprinted from the trade and technical press, comprising a digest of matter which is considered worthy of the additional distribution which will be secured in this manner. The first



Fig. 4.—The Use of Compressed Oxygen in Dismantling a Crank Shaft and Flywheel.

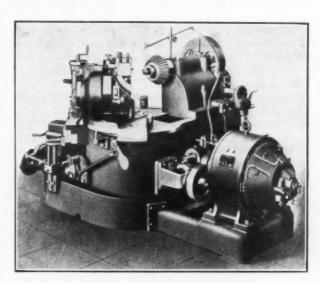
issue comprises 61 pages of illustrations and letter press. The leading article is on the "Hydro-Electric Development of the Great Northern Water Power Company," Duluth. The publication is handsomely printed and illustrated. The price is stated to be 25 cents per copy, or \$2 per year.

A Motor Driven Gleason Bevel Gear Cutter.

A compact and efficient machine provided with an individual electric motor, for planing bevel gears of any angle, eight or more to one, and any size up to 24 in. pitch diameter, is shown in the engraving. It is a 24-in. automatic bevel gear planer as manufactured by the Gleason Works, Rochester, N. Y.

This machine will plane bevel gear teeth to cone lines. The formers used to give the tooth outline are produced by a machine which generates the curve. The resulting formers are absolutely correct, as the machines have been designed and built to do this work exactly. The three formers necessary for cutting a gear, one for roughing, a second for the upper side of the teeth and a third for the under side of the teeth, are in a revolving holder, so that they are brought into position successively without removing one to give place to the next.

The gear to be cut is mounted on a horizontal spindle and is adjusted by moving the head along the frame until



A Gleason 24-In. Automatic Bevel Gear Planer with Motor Drive,

the apex of an imaginary cone circumscribing the gear coincides with the center of the machine. The arm on which the tool holder travels is rotated around the center of the machine in a horizontal plane. Besides this horizontal movement of the arm, it is hinged at the center of the machine so as to give a vertical movement as it is fed over the former, and thus the tool travels always at the correct angle of the gear from the top of the tooth to the root, and the tooth therefore has a perfect reducing cut, the small end being in proportion to the large end.

The gear planer is driven by a standard constant speed, shunt wound, Westinghouse $5\frac{1}{2}$ hp. 1135 rev. per min. type S motor fully inclosed. This size of motor provides ample power to cut the largest size of gears for which the machine is designed. The motor is connected through a system of gearing to the planer, and is mounted on a base bolted to the standard base of the gear cutter. This provides a compact unit which is independent of all belts and shafts, so that it may be located at any point in the shop which convenience dictates. The use of the machine in any shop is more or less intermittent, and motor drive effects a material saving in power because the machine takes power in proportion to the work-it turns out.

The Gleason Works also manufacture other sizes of gear planers and cutters, ranging from a capacity of 15 up to 180 in, as a maximum, the one illustrated being the second in the series. On the smaller sizes a constant speed motor is used, but for the four larger sizes an adjustable speed motor with a speed range of 2 to 1 is recommended.

A Chicago Plan for Joint Shop and School Work.

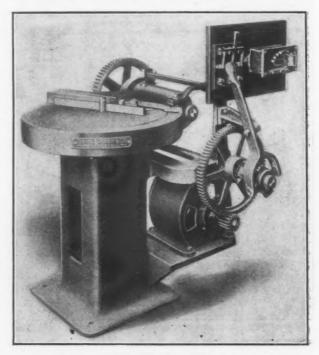
Chicago machinery manufacturers and the Lewis Institute are co-operating in a plan of joint shop and school instruction for boys, somewhat similar to that which has been carried out by Cincinnati manufacturers and the University of Cincinnati for several years. A modification of the plan has also been in operation at Fitchburg. Mass., since the fall of 1908, as already referred to in The Iron Age, though in the latter the school does not have any shop equipment. The Chicago arrangement, after a short period of experiment, was put in effect last week. Under it the manufacturers send their apprentices to school at the institute half the time, one week being spent in the shop and the next week in the school. The course extends over two years, but it is not the idea of the manufacturers or of the instructors at the Lewis Institute that a boy can become a skilled workman in that time. The expectation is that he will get a more intelligent grasp of his trade than he could otherwise obtain. The age limits are 16 and 20 years. Each manufacturer may be represented in the school by a unit, or two boys, or by two units-four boys. The employer pays the tuition fee of \$50 a year for each pupil and pays the boy \$5 for each week he works in the shop. In this way the boy receives his instruction free and \$2.50 a week for two years. Two weeks' school vacation are given in the summer, but 26 weeks a year are spent in the shop.

The Lewis Institute will give instruction to the boys 8 hr. a day five days in the week. Two hours a day will be spent on each of the following lines of study: 1. Physical science and the principles of mechanics. 2. Mechanical drawing. 3. Shop work, supplementing that done in the metal working establishments. 4. English, history and mathematics. Twenty-seven boys are now taking the metal working course in the institute, and some of them are sufficiently advanced to be sent to shops at once. Several boys serving apprenticeships in shops are being tried out, and will probably prove good enough to be sent to the institute. The boy who puts in the full course at the institute will still have to learn his trade, though the term of his apprenticeship may be reduced as a result of his better education. The Lewis Institute has equipment for the instruction of 60 boys in the course provided in the metal trades.

A New Olsen Bending Tester.

The special testing machine illustrated is designed for testing iron and steel by bending cold. The cold bend test is to-day specified by many manufacturers for a great deal of iron and steel and the use of this machine facilitates the process. By the method heretofore used bending tools were inserted in an ordinary tension testing machine. This required considerable time for setting the machine, which could be more profitably used for tension testing alone. With this machine it requires only 3 min. to bend a specimen double; that is, 180 degrees around a pin. The saving of time by the use of this machine for this special purpose in place of the old type of machine, is of great advantage to a steel mill or other establishment where a great many tests must be made in a short time.

The machine is intended for making a cold bend test on iron or steel specimens up to a size of 1 in. square or equivalent. The specimen is bent around a pin of a diameter equal to its own thickness. Any size of pin up to 2 in. diameter may be used, the smaller sizes being reinforced to withstand the bending pressure. The pins



A Motor Driven Cold Bend Testing Machine Built by Tinius Olsen & Co., Philadelphia, Pa.

have taper shanks so that they can readily be changed to suit the different sizes of specimens. In order to insure ready release from the taper fit, a knockout pin is provided, which, when tapped with a hammer releases the bending pin. Provision is made for placing the bending pin at varying distances from the center, as required. A taper liner at the back of the specimen serves for the adjustment of the various sizes of specimens to be tested. The outer circular edge of the machine is graduated for every 5 degrees so that the specimen may be bent to any desired angle up to a complete bend of 180 degrees.

A small Westinghouse electric motor is mounted on a bracket at the rear of the outfit so that the entire unit may be located wherever desired to make it most convenient of access. A direct current 1½ hp. motor running at 1250 rev. per min. furnishes ample power to bend the largest specimens used in the machine. The motor is controlled by a switch and starting rheostat, which are mounted just above the handle of a clutch on the first gear reduction shaft. From this lever the operation of the machine is controlled by hand. To prevent accidental injury an automatic stop is provided which will mechanically throw out the motor switch at the end of the return stroke if the attendant should forget to operate the hand lever. The reverse motion of the table is obtained by reversing the motor by a double throw switch.

The machine is manufactured and sold by Tinius, Olsen. & Co., Philadelphia, Pa.

The O. K. 6-Ft. Disk Grinder.

Four men can work simultaneously at a 6-ft. double side disk grinder, which has been built and used by the O. K. Tool Holder Company, Shelton, Conn., for about two years, and is now to be placed on the market. Figs. 1 and 2 show the two sides of this rather remarkable machine and Fig. 3 is a line drawing, giving in better detail the construction of the machine and the manner of holding the emery blocks. Only two swinging tables are shown in Fig. 3, but the machines are now furnished with four, as the half-tone engravings clearly show.

One advantage claimed for the machine is that while the center is no higher than that of the ordinary grinding machine, it affords a very much greater grinding surface, since the space from the floor to the center is nearly all utilized to swing the disk wheel. This large disk runs on Timkin roller bearings, which are adjustable and give absolute rigidity in both directions. For the drive a 36-in, pulley is used, taking a 6-in, belt. By crossing the belt and running it nearly vertical there is ample clearance for four men to work at the machine and without interfering with each other.

Another feature of which a point is made is that the

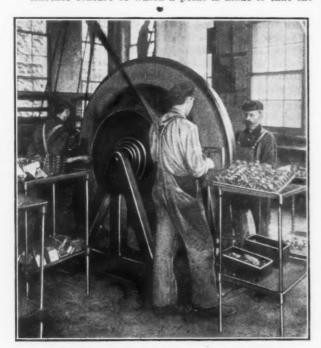


Fig. 1.—The 6-Ft. Disk Grinder Built by the O. K. Tool Holder



Fig. 2 .- A View of the Opposite Side of the Grinder.

emery disk being only 8 in, wide and carried out to this large diameter has substantially the same speed at all points across its face. In all there is a total of 18 sq. ft. of abrasive surface, which naturally does not become dull fast enough to call for frequent sharpening. When sharpening is required a Huntington dresser is clamped to the table and swung across the face of the wheel a few times, which soon sharpens and trues up the surface.

According to several tests which have been made it is possible to grind about three times as fast on a wheel of this size than on an 18-in, wheel of the same grain and grade of emery. When it is desired the two sides of the wheel may have inserted in them two different grades of emery for rough and finish grinding, respectively.

On the first of these wheels which was started in the builder's plant and used continuously for grinding high speed steel, the emery lasted over a year. After it had been worn down from 4 to 1½in. thick, 7½-in. wooden strips were placed back of the emery blocks to protrude their surface and it was possible to wear them down to ½ in thick before discarding them.

Each block is held independently in the wheel by

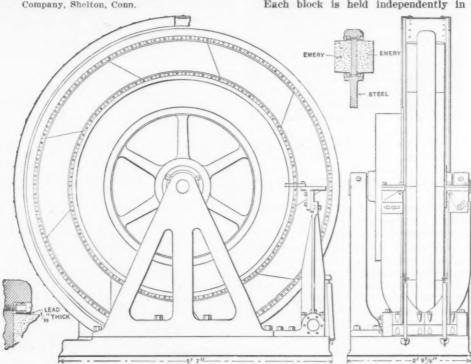


Fig. 3.—End and Side Elevations of the Machine and Details of the Fastening of the Emery Blocks.

strips of metal, both on the outside and inside edge of the blocks, which is regarded as the safest possible manner of fastening and running an emery wheel. Each of the clamping strips binds independently of the others and bears against a sheet of lead between it and the emery block. Before the blocks are put in the steel disk they are carefully surfaced, so that there will be a perfect bearing where they contact with the web of the wheel, thus likelihood of cracking them when they are later tightened into place is avoided. The emery rings are in nine blocks or sections on each side, each 8 in. wide by 4 in. thick. The total weight of emery is about 1062 lb., and the total weight of the machine, 7500 lb.

The Krieger Gauge for Sharpening Cutting Tools.

To grind V-point cutting tools quickly and accurately requires considerable skill if the unaided eye is depended upon to guide the operation. It is to facilitate such work and to secure more nearly accurate results that the gauge here shown has been devised and brought

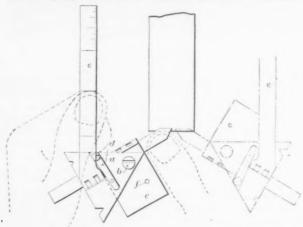


Fig. 1.—Diagram Illustrating the Use of the Krieger Tool Sharpening Gauge.

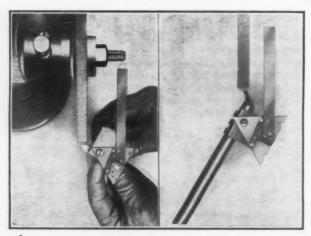


Fig. 2.—The Gauge Used for Sharpening a Threading Tool.

Fig. 3.—As Used When Sharpening a Tool with Offset Point.

out by the Krieger Tool & Mfg. Company, Grand Rapids, Wis.

The tool consists of a clamp in combination with a triangular plate to which a gauge bar is hinged. Both the construction and application of the tool are clearly indicated in Fig. 1, wherein it is seen that the triangular piece a is pivoted on a screw, b, by which it is attached to the face plate c. The face plate in turn is riveted to a spring clamp similar to an ordinary sheet steel paper clip. On the upper side of the triangular plate is a spring tongue, d, with a stud on its under side projecting through and engaging holes in the face plate, thus locking the triangular plate a against rotation with respect to the clamp. This plate carries a gauge bar, e, hinged so that it may be turned either to the right or left for

grinding either side of the tool. The axis of the hinge coincides with the medial line of the triangle through the screw pivotal joint. The gauge bar is so formed that when lying flat on either side of the triangle it makes a 60-degree angle with the axis of its hinge and stands perpendicular to the side of the triangle across which it lies.

Thus in grinding a 60-degree V-point on a threading tool, for instance, the tool is held as shown in Fig. 1; when the gauge bar is held parallel with the wheel the correct angle will be ground on the cutting tool. In grinding the other side of the cutting point the gauge bar is thrown over in reverse position, as indicated by the dotted lines in Fig. 1, which brings it into position to guide the grinding of the other side of the tool. A second position of relative angles between the gauge bar and tool point is secured by rotating the plate a until the pin in the tongue spring engages the hole f. This shifts the tool clamp through an arc of 90 degrees and affords means of gauging the grinding, similarly as above described, on tools having turned or off-set cutting points.

The gauge bar, which is graduated with inch or other units of measure, also forms a convenient rule, and is made long enough so that its parallel position with respect to the wheel can be readily established by the eye. At the bottom of the triangle a are V-shaped notches, which serve as gauges for measuring the angles ground on tool points.

This holder is claimed to be specially serviceable in securing the accurate results required in grinding points on threading tools and engravers' tools, &c. Its application, when adjusted to the position shown in Fig. 1, to the grinding of a thread cutting point is illustrated in Fig. 2, and its use in connection with the grinding of an off-set tool is represented in Fig. 3.

Efficiency Tests of the Manly Drive.

At the request of the Manly Drive Company, 17 Battery place, New York City, George H. Barrus, expert and consulting engineer, Boston, Mass., recently conducted a number of efficiency tests on the Manly hydraulic variable speed drive in the company's laboratory in Brooklyn, N. Y. This drive, a full description of which appeared in *The Iron Age* December 10, 1908, consists essentially of a multi-cylinder pump of variable stroke and one or more multi-cylinder hydraulic motors of constant stroke, placed in any relation to one another and connected by piping through which the discharge of the pump is delivered to the motors and returned to the pump.

The equipment tested was that illustrated in Fig. 2 of the article before mentioned, and represented one intended for a 5-ton motor truck. For the purposes of the test one of the two motors in this equipment was removed and the connections to it blank flanged, so that all of the discharge of the pump was delivered through one motor, making it possible to measure all of the power delivered with a single Prony brake. While this arrangement increased the resistance to the flow of the transmitting medium, machine oil, making the conditions less favorable than they would be in ordinary practice when both motors would be used, it insured greater accuracy in the test.

Four series of tests were made, as follows: Series A, with the circulating oil at medium temperature, the driving shaft supplying constant power at constant speed, and the driven shaft receiving constant power at varying speeds; series B, with the circulating oil at medium temperature, the driving shaft supplying varying power at constant speed, and the driven shaft receiving varying power at varying speeds; series C, with the circulating oil at maximum temperature, the driving shaft supplying constant power at constant speed, and the driven shaft receiving constant power at varying speeds, and series D, with the circulating oil at maximum temperature, and the driving shaft supplying varying power at constant speed, and the driven shaft receiving varying power at varying speeds, and the driven shaft receiving varying power at varying speeds.

In the series A tests at the maximum speed of the driven shaft 363 rev. per min. an efficiency of 85.3 per cent. was realized, which increased to 89.4 per cent. as

the speed was reduced to 250 rev. per min. and decreased to 85.7 per cent, with a further reduction of the speed to 140 rev. per min. In the series B tests the efficiency was 86.2 per cent. at the full speed, 352 rev. per min., increasing to 88.4 per cent, when the speed was reduced to 264 rev. per min., and falling back to 83.1 per cent. when the speed was reduced to 112 rev. per min. In the series C tests the full speed efficiency was 87.4 per cent. at 350 rev. per min., the maximum efficiency 91.9 per cent. when the speed was reduced to 270 rev. per min., and with a further reduction of the speed to 163 rev. per min. the efficiency was 87 per cent. In the series D tests 87.4 per cent. was the full speed efficiency at 350 rev. per min., 90.9 per cent. the efficiency at 245 rev. per min., and 81.6 per cent. the efficiency at 105 rev. per min. As might be expected, better efficiencies were obtained when the circulating oil was at its maximum temperature and consequently of a more fluid nature.

The tests also included an efficiency test of the 15-hp. General Electric motor which was directly connected to drive the pump. From the curve of efficiencies at various speeds plotted from this test the efficiency of the motor at any speed was known, making it possible to calculate the exact power delivered to the pump in the tests of the drive from the readings of the voltmeter and ammeter in the electrical circuit of the motor. The power in watts supplied, converted to electrical horsepower and corrected for the efficiency of the motor, gave very exact determinations of the power imput to the pump, and the Prony brake applied to the oil motor shaft gave the power delivered by the latter. This power divided by the power supplied to the pump gave the efficiency in each case.

The tests incidentally showed the ability of the apparatus to operate satisfactorily for protracted periods without any overheating or other evidence of distress in any part of the mechanism. A number of the runs made lasted as long as 10 hr.

In comparing this type of power transmission with electrical means of varying speeds it was pointed out that a wider range of variation is possible and higher efficiencies. The loss of power in its use is less than that of an electric motor alone, to say nothing of an almost equal loss which would occur in an electric generator even with constant speed and full load conditions. As the four most important features of the Manly drive the following are cited: Absolutely uniform and positive speed control, ability to reverse the direction of motion, increasing torque with decreasing speed, and the full power transmitted at all speeds, and a braking action at the position of no stroke, all combined in one device and all under the control of one operating lever.

The American Foundrymen's Association at Cincinnati.

Dr. Richard Moldenke, secretary of the American Foundrymen's Association, announces that the 1909 convention will be held at Cincinnati in the week of May 17. The meeting days of the American Foundrymen's Association will be May 18, 19 and 20, while the exhibition of working foundry machinery and equipment prepared by the Foundry and Manufacturers' Supply Association will be open the entire week. The Hotel Sinton has been selected as headquarters. The three allied associations joining with the American Foundrymen's Association in this convention are the Foundry and Manufacturers' Supply Association, the American Brass Founders' Association and the Associated Foundry Foremen. Cincinnati has always given a generous welcome to the foundrymen, and for the present convention is making preparations on an unusual scale. Referring to the programme of discussions and papers, the announcement says: "Your secretary asks that those foundrymen who have had abundant leisure during the hard times to study up new methods of economy and shop procedure give us papers and subjects for discussion at the coming gathering, so that with the renewal of business activity we may use our resources to better advantage. A mere memorandum embodying the

idea will be highly acceptable, and capable speakers will be found to go into the subject so that it may be thoroughly discussed."

The Electric Smelting of Zinc in British Columbia.

TORONTO, January 15, 1909.—Spelter and lead-silver bullion—are now being produced on a considerable scale at the electric smelter of the Canadian Zinc Company in Nelson, British Columbia. The ores treated average about 40 per cent. zinc, 10 per cent. lead and 12 ounces silver, with 11/2 per cent. copper. The successful operation of this plant, which was under construction the greater part of the last year, is noteworthy. The use of the electric current enables the zinc to be recovered economically. Before this plant was completed, which was at an expenditure of about \$125,000, experimental work was carried on for five years with the object of finding out the most practicable way of treating the ore. Public aid was not wanting. Investigations were made into the zinc resources of British Columbia and into the conditions affecting their exploitation. These investigations were carried on by a commission, appointed by the Superintendent of Mines in the summer of 1905. The report of the commission was presented about a year later. Besides the exhaustive work of the commissioner and his assistants-work which is to be credited to the Dominion Government—the zinc smelting enterprise had the help of the British Columbia Government, which contributed \$20,000 to the cost of installing the Nelson plant. At present the capacity of the smelter is 10 tons a day, which is to be increased to 30 tons. Frederick T. Snyder of Chicago is the inventor of the process used. Power is brought from Bonnington Falls on the Kootenay River. The works are the first of the kind established on this continent and are a development along lines applied in Sweden, where the treatment of ore by electricity has been a commercial success for the last three years.

In British Columbia zinc occurs in lead-silver ores as it does elsewhere. At the outset, when the mines were superficially worked, the zinc constituent of the ore seemed too small to be regarded as a product. As mining operations went farther down the zinc became a larger proportion of the metallic content, the blende and the galena occurring intermixed. In some of the lowest levels the lead is found to be almost entirely displaced by the zinc. The zinc ore so far produced in British Columbia has been blende, in which sometimes iron is combined, and in which silver is practically always present, sometimes in a very high degree. From ores of this kind few existing American smelters are in a position to extract silver and lead from the ore and at the same time save the zinc. The Nelson furnace has shown high efficiency in separating all these elements at a reasonable

In the commission's report, referred to above, the possibility of enriching the zinc ores of British Columbia to a high degree by magnetic separation was shown to have been demonstrated by the commission's test. As to the electric smelting of zinc ore the commission expressed its doubt that it could ever be profitably carried on in the zinc producing districts of the East and West Kootenays, because in many parts of those districts the water powers are small and irregular, being pronounced insufficient even to run the small concentrating mills during the winter. It was recognized by the commission that the water powers at Bonnington Falls would be adequate. but, it was pointed out, the energy developed there would be so valuable for mining and miscellaneous purposes as to command a higher figure than the operators of a zinc smelting plant could afford to pay. The success of the Canadian Zine Company, which is utilizing Bonnington Falls power, disproves this theorizing of the commission. It had also been the opinion of the commission that electric smelting of zinc ore, even in places where deposits and water powers were in satisfactory abundance and in juxtaposition, could not be a commercial and metallurgical success until many stages of experiment had been passed through.

New Excelsior Multiple Punches.

An automatic multiple punching machine for sheet metals has been a product of the Excelsior Tool & Machine Company, East St. Louis, Ill., for the past three years. One of the first of these machines was described in The Iron Age March 8, 1906. Recently the company has added to the range of sizes two larger machines known as Nos. 4 and 5, in which some slight changes have been made in the details of the operating mechan-The machines are principally intended for stove and range manufacturers to do in one operation the punching of all rivet and bolt holes in the sheet metal parts that enter into their products. The No. 4 machine is most useful on sheet iron of No. 14 gauge and lighter. It will take a sheet 32 x 120 in., punching as many holes as can be placed a distance of % in. apart. The No. 5 machine has a capacity of 40 x 150 in., and as thick a sheet as No. 8 gauge.

The punching is done by the passing of a heavy roller over the protruding upper ends of punches loosely inserted in a supporting plate, and resting upon the sheets to be punched. The roller is slightly inclined so that it does not strike all of the punches in a straight line simultaneously. The essential features are a die plate with inserted dies to which is fastened a double guide plate for the punches and a loose stripper plate to strip them. The punches are set in the double guide plate to correspond with the die below, and can be removed at any time as they are not fastened in and merely rest on the stripper plate when not in use. The die plates and punch holders are made in sections from 4 to 36 in. wide, according to the requirements of the locations of holes. These sections merely rest on the bed plate of the machine, and all that is required to keep them in place are the side clamps provided.

The sheet is placed in the lower opening of the die plate and the lever is reversed to start the machine. The same operation lowers the stripper plate and allows the punches to rest upon the sheet to be punched. The roller is driven by two screws, one in each housing or slide, which housings at the same time contain the pressure of the roll while in operation. The screws are driven by cut gears from the driving pulley by straight and cross belts, so that the machine will operate in either direction. The screws operate the roller and force the punches through the sheet. The punches are slightly rounded where they come in contact with the rollers. When the roller has passed over the entire surface the stripper plate is raised, stripping the punches, also shifting the belt on the loose pulley, and automatically stopping the roller at the end of each operation. The sheet is then removed. The length of stroke can be changed from 2 to 10 ft., according to the length of the sheet. The



Fig. 2 .- View from the Operating End, Showing the Punch, Die and Stripper Plates.

action is somewhat like that of an iron planer, all of Its movements being equally simple and automatic. The dies being in sections only those necessary to make a change need be removed.

All of the rivet, ventilating and water back holes in a range plate can be punched, all of the bending lines for the brake marked and all of the notches cut true to pattern in a sheet 32 x 120 in., of any number of holes, in less than 1 min., according to the guarantee of the manufacturer. Smaller sheets can be proportionately punched in shorter time. With a different set of dies all of the openings for the ovens, firebox clean out and back flue, &c., can be cut at the same rate. In this particular line of work the machine takes the place of a horseshoe punch, gang punch, inside cutters and heavier punching presses ordinarily used, and is claimed to do the work. more accurately, to require no skilled labor and to com-

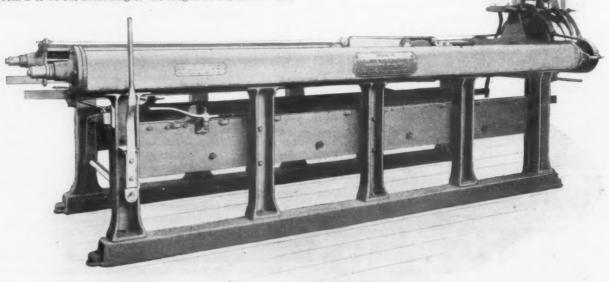


Fig. 1.—Side View of the No. 4 Automatic Multiple Punching Machine Built by the Excelsior Tool & Machine Company, East St. Louis. Mo.

plete range bodies at the rate of 300 per day, with only one man and a helper required to attend it. The dies are all interchangeable, and additional dies can be ordered at any time. An overhead trolley, countershaft and lifting bars are furnished with each machine to handle the dies quickly and easily.

For either machine a source of driving power of 3 hp. is required. The No. 4 machine occupies a floor space of 5 x 15 ft. and the No. 5 machine 6 x 18 ft. With one set of dies the smaller machine weighs about 30,000 lb., and the larger machine in proportion. The countershaft is intended to run at a speed of about 170 rev. per min. Fig. 1 is a side view of the No. 4 machine, and Fig. 2 an end view, showing the punches, and the punch holder plate, stripper plate and die plate, respectively, in sequence from top to bottom. The roller is shown in the extreme back position, the controlling lever at the right, and the screws in the housings at either side, which drive the roller. When it is desirable a belt may be applied to cover the entire die surface passing on rollers over the pressure roll, so that it does not come between the punches and the roll. It prevents foreign substances from coming in contact with the roll and prevents the punches from jumping out of place when stripping a buckled sheet.

The Woggle Punching Table.

For bridge and structural shops, steel car plants, boiler shops, shipyards, and everywhere that it is important to do accurate punching economically, a novel equipment is offered by the Standard Bridge Tool Company, Pittsburgh, Pa. It includes as attachments to an ordinary vertical punching machine an indicator mounted on the stem of the punch and a double jointed table universally movable in a horizontal plane, patented by George R. Thomas. Thus equipped, the machine is intended for punching all sizes and shapes of plates, such as details, gusset and other plates, to a templet, saving the cost of marking. The table which carries the work over the die derives its name from the movements possible through the numerous joints in its construction. Two views of the table are given in Figs. 1 and 2.

The manner of using the table is very simple; the piece to be punched is simply laid on the extended arms of the table over the die, with a cardboard templet having the desired spacing clamped directly to the piece. Where large numbers of duplicate pieces are to be punched a

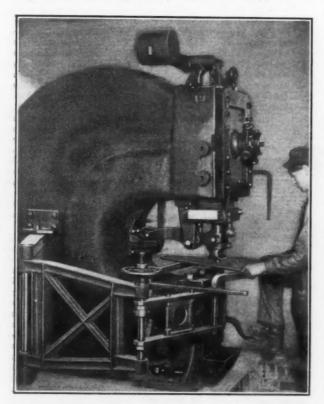


Fig. 1.—A Punch Equipped with the Woggle Table and Indicator, Made by the Standard Bridge Tool Company, Pittsburgh, Pa.

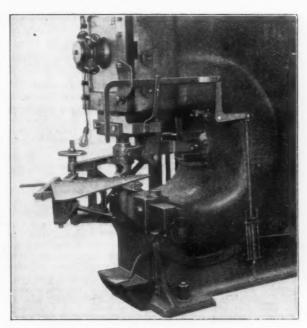


Fig. 2 .-- A Detail of the Opposite Side.

sheet metal template is preferable. The holes in the templet are made the same size as the point of the indicator mounted on the stem of the punch. The indicator also serves as a stripper and is entirely independent of the movement of the punch. It is controlled by a suitable foot lever, which also controls the clutch of the punch. By depressing the foot lever the indicator is brought down on the templet, and the table at the same time is shifted until the indicator enters a hole in the templet, after which any further depression of the foot lever will release the clutch and lock the indicator in its engaged position in the templet to serve as a stripper. The indicator is released at the moment the punch is free of the material and the table can be shifted for the next hole. Ordinarily, for handling this class of work, two men and frequently more are required at the punch, but with the Woggle table one man handles the heaviest pieces with ease. The equipment, therefore, accomplishes two desiraable ends-it reduces the help at the punch and eliminates marking.

While primarily intended for punching material to templet, it can also be used equally well for punching to mark or centers. In this case a gag is provided on the punch, and the indicator is locked in the down position for stripping. The punch is allowed to run continuously and the gag is controlled electrically. In operating for punching to centers, the table is shifted beneath the punch to the position where the tip of the punch hits the center or mark on the piece in the same manner as when operating with the templet, and the gag is then thrown in by means of an electric contact controlled by a foot lever. In this manner punches can be speeded to about 38 or 40 strokes per minute, and the operator, after a little practice, can catch every other stroke of the punch.

The Woggle table is shown in Fig. 1 attached to the side of the punch, but it can be mounted on any suitable support convenient to the punch, such as a column of the building. The table is all steel and is equipped with roller and thrust bearings. The extended arms to carry the material over the die can be adjusted to various sizes and shapes of pieces to be punched. A vertical adjustment of about 2 in. is provided to keep the material free of the dies, and also an adjustment for the indicator for different thicknesses of pieces. The entire outfit as shown can be applied to any suitable punch.

At the recent annual meeting of the Ironton Iron Company, Ironton, Ohio, the Board of Directors was reelected as follows: Col. H. A. Marting, C. B. Fowler, W. A. Murdock, D. C. Davies, A. H. Mittendorf, E. O. Marting, F. L. McCauley, A. C. Lowry and Charles Peters. The stockholders are well pleased with the results from the operation of the plant, and are looking forward to a good business.

TARIFF TESTIMONY AT WASHINGTON.

Statements Regarding Metals Submitted to the Ways and Means Committee.

The Ways and Means Committee has received additional briefs and less formal written statements regarding the rates of the metal schedule, some of the most important of which are presented herewith:

LAP-WELDED PIPES.

Statement of Hon. Irving P. Wanger, M. C., on Behalf of the Longmend Iron Company, Conshohocken, Pa.

Referring to the statement of J. A. Campbell before the committee November 25, 1908, in which he said that the duty on lap welded, &c., iron or steel pipes, &c., might be reduced from 2 cents per pound, as provided by paragraph 152 of the act of 1897, to 1 cent per pound or even to \$18 per ton, Lewis N. Lukens, president of the Longmead Iron Company, Conshohocken, Pa., informs me that he concurs with Mr. Campbell so far as that statement relates to the sizes of pipe % in. and upward to which Mr. Campbell was referring, although when it gets down to %-in. size \$18 per ton is scarcely adequate, and when it comes to smaller sizes, to which Mr. Campbell made no reference whatever, then \$18 per ton is insufficient.

The Longmead Iron Company manufactures pipe from 3 in. to ½ in. in diameter. From 3 in. down to ¾ in. the prices (and cost of manufacture) are the same per ton in the several sizes, but getting down to ½ in. ¾ in., ¼ in and ½ in. the price of cost advances with each diminishing size; and the occasion for this is evident when it is considered that a small mill with the capacity to produce 80 tons of 3-in. pipe per week will not produce more than 35 to 40 tons per week of ½-in. pipe nor more than 20 tons per week of ½-in. pipe. Hence it is evident that not only the labor cost per ton, but all of the other expenses, interest upon capital, &c., and other general charges are greatly increased per ton upon the smaller sizes.

upon the smaller sizes.

Mr. Lukens accordingly asks that paragraph 152 be amended by adding after the words "not thinner than No. 16 wire gauge," the following: "and of % in. or larger diameter, 1 cent per pound; of ¼ in. and less than % in. diameter, 1½ cents per pound; of less than ¼ in. in diameter, 2 cents per pound."

STEEL BILLETS, BLOOMS AND SLABS.

Statement of the Alan Wood Iron & Steel Company, Philadelphia, Pa.

In connection with the proposed revision of the Dingley tariff law, we respectfully address you herein in reference to paragraphs Nos. 121, 122, 124, 131 and 135 of the metal schedule.

Our works are at Conshohocken, in the Schuylkill Valley in eastern Pennsylvania, and we manufacture and sell independently in the open market steel billets, blooms and slabs for forging and rerolling, and light plates and sheets of iron and steel. Our markets are the Atlantic Coast and the Pacific Coast. Practically prohibitive freight rates prevent us from entering the vast consuming territory between the Allegheny Mountains and the Rocky Mountains. Situated as we are, therefore, on the Atlantic seaboard, lacking the geographical protection enjoyed by our competitors west of the Allegheny Mountains, unable to enter the great markets of the Central West, and with somewhat higher costs on account of our less favorable location with regard to supplies of ore, coal and coke, too radical a change in the iron and steel tariffs would much more seriously affect us than manufacturers who are more centrally located with reference to our home markets and the necessary supplies of raw materials. It is obvious, therefore, that any reduction that would be satisfactory to us should be agreeable to all.

If, after due deliberation, it is decided to revise the tar-

If, after due deliberation, it is decided to revise the tariff downward in order to fulfill the pledge of the party returned to power, we trust that you may so adjust the revised rates as to prevent too sudden or undue a change in present industrial conditions; and believing that on account of our location our views with reference to the duties on our products may be of value to you, we have given the matter careful consideration. We find that very small reductions only would be possible, and we think that no changes should be made in the duties on our manufactured products, unless we be given at the same time lower rates on certain raw materials. On this basis we respectfully submit the following recommendations to your honorable committee:

1. Iron ore, paragraph 121, present duty 40 cents per ton:

We appeal strongly for free ore. This will conserve our natural resources, which are being depleted too rapidly, and it will help to overcome the disadvantages under which Eastern merchant pig iron furnaces are laboring on account of the practical monopoly of the American ore supply.

2. Pig iron, paragraph 122, present duty \$4 per ton: In round figures it takes 2 tons of ore to make 1 ton of pig iron. It is doubtful whether Eastern makers of pig iron

would get the entire benefit of the abolition of the duty of 40 cents a ton on iron ore, but, assuming that they would, it would make a difference in the cost of pig iron of about \$1 per ton. We therefore recommend a reduction of \$1 per ton on pig iron, making the new rate \$3 per ton, instead of \$4 per ton, as at present.

3. Wrought and cast scrap iron and scrap steel, para-

graph 122, present duty \$4 per ton:

Scrap is not manufactured, but is a by-product, the result of waste and wear. About 50 per cent. of it is used in the open hearth furnace to make 1 ton of steel, with about an equal quantity of pig iron. Because it is not manufactured, the removal of the duty upon it or a heavy reduction in the rate will not injure any one, but will have a tendency to reduce the cost of open hearth steel to the American consumer and will benefit (a) open hearth steel melters, (b) the laborers engaged in handling the material, (c) and the dealers and brokers who operate in it.

the laborers engaged in handling the material, (c) and the dealers and brokers who operate in it.

There is a shortage in the supply which has been brought about by the passing of the Bessemer converter and the rise of the open hearth furnace. The Bessemer steel plant was a maker of scrap, while the open hearth furnace does not supply itself. In our verbal statement we did not give you certain striking figures. They are as follows:

You will note (a) that in the 10 years from 1897 to 1907 the percentage of increase in the production of open hearth steel was nearly eight times as great as the percentage of increase in the production of Bessemer steel; (b) that during the same period the percentage of increase in the production of basic pig iron (which forms 50 per cent. of the charge in an open hearth furnace) was almost exactly the same as the percentage of increase in the production of open hearth steel.

In other words, the production of the chief manufactured ingredient of a ton of open hearth steel has kept pace with the demand, while on the other hand, with manufacturers abandoning their Bessemer converters, we find ourselves facing decreased production and increased consumption, with a consequently steady decline in the available supply of scrap per furnace per annum. This situation has made the scrap market highly speculative, and the cornering of the supply in a given district has become possible. We believe that the removal of the duty on scrap would result in largely increased imports, and if revenue is required for the Government a nominal duty of not exceeding 50 cents per ton would produce large sums for the Federal Treasury. We therefore recommend a reduction of \$3.50 per ton in the duty on scrap, making the new rate 50 cents a ton instead of \$4 as at present.

4. Steel billets, paragraph 135, present duty three-tenths of 1 cent per pound, when valued at 1 cent per pound or less, &c.:

We have stated that approximately one-half a ton of pig iron and one-half a ton of steel scrap are required for the manufacture of 1 ton of open hearth steel. Our proposed reduction of \$1 per ton in the duty on pig iron, therefore, is equivalent to a reduction of 50 cents per ton on steel bilets. It would not be possible for manufacturers to realize in their cost sheets the full benefit of our proposed reduction of \$3.50 a ton in the duty on scrap iron and steel, but we would be willing to concede \$1.50 a ton on steel billets, in view of our proposed reduction on scrap, and this, added to the 50 cents a ton that would logically follow our proposed change in the pig iron schedule, would make a total reduction in the duty on steel billets of \$2 per ton. This is the maximum reduction that could be made on steel billets to-day without seriously affecting every Eastern steel manufacturer; and we earnestly request that, should you find it necessary to scale down this duty, you will not reduce it more than this. It is likely that importations would

begin at once even on this basis. For example, the latest quotation that has come to our notice (November, 1908) on German billets was \$26.50 per 2240 lb., f.o.b. dock Philadelphia, duty paid. This was based on the present duty of \$6.72 per ton. Had the duty been \$2 a ton less, as suggested above, the price would have been, presumably, \$24.50 per ton, a figure that could not be met with profit by any manufacturer East of the Allegheny Mountains.

5. Sheet steel, paragraph 131 present duty seven-tenths

5. Sheet steel, paragraph 131, present duty seven-tenths of 1 cent per pound for sheets thinner than No. 10, and not thinner than No. 20, valued at 3 cents a pound or less, &c.: While it requires 1 1-5 tons of steel to make 1 ton of

sheets, we find by comparing present foreign selling prices that we can stand a ton for ton reduction in the heavier gauges, and therefore suggest the following: Thinner than No. 10, but not thinner than No. 20 wire gauge, one-tenth of 1 cent per pound reduction; thinner than No. 20, but not thinner than No. 25 wire gauge, fifteen one-hundredths of 1 cent per pound reduction; thinner than No. 25, but not thinner than No. 32 wire gauge, twenty-five one-hundredths of 1 cent per pound reduction; thinner than No. 32 wire gauge, twenty-five one-hundredths of 1 cent per pound reduction; corrugated or crimped, twenty-five one hundredths of 1 cent per pound reduction.

This would make the new rates as follows: Thinner than No. 10, but not thinner than No. 20 wire gauge, six-tenths of 1 cent per pound; thinner than No. 20, but not thinner than No. 25 wire gauge, sixty-five one-hundredths of 1 cent per pound; thinner than No. 25, but not thinner than No. 29 wire gauge, sixty-five one-hundredths of 1 cent per pound; thinner than No. 25, but not thinner than No. 32 wire gauge, eighty-five one-hundredths of 1 cent per pound; thinner than No. 32 wire gauge, ninety-five one-hundredths of 1 cent per pound; corrugated or crimped, eighty-

five one-hundredths of 1 cent per pound.
6. Charcoal iron bars, blooms, billets, &c., paragraph 124, present duty \$12 per ton:
While making our verbal statement before your committee, you asked whether we knew of any reason for keeping this bird with the procedure of the proced ing this high duty on charcoal iron. This is made exclusively in Sweden and Norway from the peculiarly fine ores that they mine there, and the pig iron, bars and blooms are worked throughout with charcoal fires. The result is an iron of such quality as can be reproduced nowhere else in the world. the world. Years ago large quantities of it were used in this country, and it is still imported for special purposes, but its high price, plus the high duty, has made the prices of the various products manufactured from it so high as compared with open hearth steel and other cheaper and poorer forms of so-called charcoal iron that its use has been leaved, contained. largely curtailed.

In view of the fact that there is no source of supply for this material in this country, we can see no reason for the retention of so high a duty as \$12 a ton. We believe further that a marked reduction will enable us to revive a great deal of the business we have had in the past, and this would be the case with manufacturers of other forms of it, such

as wire, bars, skelp, &c.
We should think this duty might at least be cut in half. and do not believe any injury would result to makers of so-called charcoal blooms in this country if it were lower than We suggest, however, the advisability of the retention

this. We suggest, however, the advisability of the retention of some of this duty as a source of revenue.

Please bear in mind that we have given you frankly the maximum reductions that we believe could be made to-day without serious disturbance of the industry of this district. We believe that the competition that we and other independent makers of steel are providing for the trade on the Atlantic and Pacific coasts is of value to the country at large and should be continued. Its value to the consumer and to the small manufacturer who buys our products is unquestionable, and we believe that by just so much as you reduce the duties on the products mentioned above beyond the points that we have recommended by just so much will the points that we have recommended by just so much will you force the curtailment of operations east of the Alleghenies and foster a state of monopoly in the steel trade of this country.

SPRING STEEL.

Statement of the Tuthill Spring Company, Chicago, Ill.

We respectfully ask that in the tariff bill which you are

we respectfully ask that in the tarin bill which you are preparing bars of spring steel be put on the free list. Our reason for asking this is as follows:

We are among the largest manufacturers of vehicle springs for automobiles and other vehicles. We have in addition to our domestic business a considerable foreign trade, but competition from foreign countries—France, Germany, England-is such that we have to sell at narrowest margin of profit, and even at that can in South America sell only one class of springs, which it seems we can produce slightly cheaper than the French. We have found that were it not for the tariff we could buy our raw material cheaper, which would enable us to compete successfully with the province of the successfully with the province of the successfully with the successfully with the successful that the very successful that the v fully with our foreign competition. We therefore wish the duty to be removed that we may extend our foreign trade.

We are willing that the duty on our product—that is, springs for vehicles—be also removed. We can produce springs in this country as cheaply as anywhere in the

world if we are allowed to have access to the markets of the world for our raw material.

CUTLERY.

Statement of the National Cutlers Company, Detroit, Mich.

We are interested as to whether there will be any re-We still find foreign duction in the tariff on foreign cutlery. We still find foreign manufacturers able to pay the present duties on butcher and household knives and undersell us on both high grade and cheap goods. We do not think that the present tariff is any too high on cutlery, and although the writer is not aware of any concerted action on the part of the cutlery manufacturers to appear before the tariff commission of the House, we are satisfied that any reduction of the tariff on cutlery would be a detriment to our business; in fact, it would be impossible for us to make a profit on our goods if we had to meet foreign competition through any reduction of the tariff.

The New England Foundrymen's Association.

The New England Foundrymen's Association held its thirteenth annual meeting and banquet at the Exchange Club, Boston, January 13. There was a very large attendance, and the occasion was one of the most successful in the history of the organization. President Henry F. Arnold was in the chair. The report of Secretary Fred F. Stockwell showed a membership of 115 concerns, and that of Treasurer George H. Lincoln was that all bills are paid, with a balance in the treasury. The following officers, nominated by a committee consisting of B. M. Shaw, Henry A. Carpenter and George H. Gibby, were unanimously elected: President, William A. Viall, Brown & Sharpe Mfg. Company, Providence, R. I.; vice-president, J. L. Anthony, Weir Stove Company, Taunton, Mass.; treasurer, George H. Lincoln, Geo. H. Lincoln & Co., Boston, Mass.; secretary, Fred F. Stockwell, Barbour-Stockwell Company, Cambridge, Mass.; Executive Committee: W. A. Jackson, Walworth Mfg. Company, Boston; William J. Breen, H. W. Adams & Son, Boston; Arthur L. Goodnow, Goodnow Foundry Company, Fitchburg, Mass.; Joseph Schilling, Russell & Erwin Mfg. Company, New Britain, Conn.; C. Hitch, Jr., American Tool & Machine Company, Boston.

The firm of Hickman, Williams & Co., New York, was admitted to membership. The invitation of the Waterbury Castings Company, Waterbury, Conn., to hold the February meeting of the association in Waterbury was accepted, and L. N. Perrault of the company was appointed chairman of the Committee of Arrangements.

More than 100 members and their friends were present at the banquet in the evening. President Viall was the toastmaster. Henry A. Carpenter, president of the National Founders' Association, told of the work of that body, and President E. E. Bartlett of the Boston branch of the National Metal Trades Association, made interesting remarks. The evening closed with a vaudeville entertainment.

The weekly letter of the United Metal Trades Assoclation of the Pacific Coast, issued from the headquarters at Seattle, Wash., under date of January 8, has the following on business conditions: "Our members are putting on men and several of them inform us that they are troubled to know how to take care of the work they have at hand. Within the last week we have been informed of several firms that have work enough to keep them going for a whole year in advance, if they do not take in any more. Other concerns are not so favored, but there is a general trend of enlargement of employing

At Pittsburgh one of the organizations dealing with homeless men reports that as many as 200 men have made application for work in the past 60 days, who had been drawn to Pittsburgh by newspaper articles referring to the opening up of industrial plants for operation at nearly full capacity. Instances are cited of men going from distant cities, with just enough money to take them to Pittsburgh, on the report that 5000 men were needed there at once. Many persons who are spoken of as not the ordinary run of transient laborers going from place to place, but mechanics out of employment for several months, have been thrown on charity at Pittsburgh recently.

Customs Decisions.

Combination Penholders.

It has been decided by the Board of United States General Appraisers that so-called combination penholders are not to be regarded for the purposes of duty as "manufactures of metal," with duty at the rate of 45 per cent., but instead they are held dutiable as "penholders" at only 25 per cent. The articles are metal cylinders and consist of two parts. The larger part is closed at one end, the other, which fits into the first, contains a small rubber eraser at one end, while the other end is fitted for holding a pen. The latter part being reversible, either pen or rubber may be employed as desired by the user. In upholding the contention of the importers, A. Strausse & Co., New York, General Appraiser Fischer, who writes the decision for the board, says in part:

The only purpose of the merchandise is to hold a pen to be used in writing, and that appears to be its only practical use. The presence of the rubber tip, which is of minor importance, may safely be disregarded. Certainly it does not appear that its addition to these holders should cause them to be regarded as other than mere penholders. Lead pencils supplied with rubber erasers are not on that account excluded from the category of lead pencils. We accordingly sustain the claim in the protest.

Oxide of Iron.

Final briefs in the controversy regarding the classification for customs purposes of oxide of iron have been filed with the Board of General Appraisers. Among the principals appearing in the case are Thomas Robertson and George Z. Collins & Co. A large number of other importers in New York, Chicago and Boston are interested in the outcome of the issue. The differences between the Government and the importers result from the action of the customs authorities in returning for duty the oxide as a paint or color with a duty of 30 per cent. whereas the importers insist that the merchandise should be given entry as "iron ore," with duty at the rate of \$4 per ton. In a brief filed with the board in the Robertson case, now pending before the tribunal, Charles D. Lawrence, assistant Treasury counsel, asks for the retention of the high duty as a "color." On this point he says:

While the oxide of iron under protest may have been derived from hematite iron ore, it has undoubtedly lost its identity as such by reason of the elaborate processes of manufacture to which it has been subjected, and has merged into an entirely different class of merchandise, which in the trade and commerce of the United States is recognized as a "color." Upon the undisputed facts brought out in the record introduced in this case, it is submitted that the classification as a "color" should be sustained and the protests overruled.

Wire Rope.

A controversy between the Government and J. L. Patton of Newport News has been settled by the board in favor of the importers. The customs authorities exacted duty on wire rope made of round steel wire at 45 per cent. ad valorem and an additional duty of 1.2 cent per pound. The article is a galvanized steel wire hawser. It is valued at less than 4 cents per pound and has a hemp core. According to the importer, the merchandise should be admitted at 2.7 cents per pound. This claim is sustained, as the decision for the board states that the gauge of the wire used in the manufacture of the rope is smaller than No. 13 and not smaller than No. 16. Under the circumstances the board finds that the duty should be 1.5 cents per pound, the rate imposed upon the wire, plus 1 cent per pound for the finished article, plus 0.2 cent per pound additional for the galvanizing. The above duty is to accrue on the finished merchandise. The collector's classification is reversed.

Iron Ore,

The board has sustained a claim filed by William Larselere & Co. and F. B. Vandegrift & Co., Philadelphia, regarding the classification of iron ore. The Government's charge of 30 per cent. as "crude hematite ore" is declared invalid, while the claim for duty at the rate of 40 cents per ton as "iron ore," is sustained.

Wire Cloth.

The W. S. Tyler Company, Cleveland, has been successful in its contention with the Government regarding

the rate of duty on importations of wire cloth made out of round iron wire valued at more than 4 cents per pound. Duty was assessed by the custom house officials at the rate of 45 per cent, ad valorem, plus 1½ cents per pound. On the other hand, the importers maintained that the merchandise should be admitted to entry at 40 per cent. The decision for the board has this to say regarding the merits of the claim: "The importer's contention in this case is well founded. There appears to be no reason evident why the 45 per cent. duty was assessed. We hold this wire cloth, made from round iron wire, valued at over 4 cents per pound, is dutiable at 40 per cent. plus 1½ cents per pound. The protest is sustained and the decision of the collector reversed."

Steel Separator Hoods.

Steel hoods for cream separator machinery are held dutiable by the board at the rate of 4.7 cents per pound under the provision in the tariff for "pressed, sheared or stamped steel shapes." This classification is the one contended for by F. J. Arend, New York, the importer. The decision of the custom house authorities imposing 45 per cent, as "manufactures of metal" is set aside.

Needles Not Part of Machines.

It has been decided by the board that needles imported with embroidery machines are not subject to assessment as entireties. Charles Seitz, New York, imported the machines and needles. The collector classified both machines and needles as entireties, and levied duty as "manufactures of metal" at the rate of 45 per cent. The importer alleged that the needles should be admitted to entry at 25 per cent, as "needles not specially provided for." General Appraiser Fischer in his decision for the board sustains the importer's contention.

Inland Freight Part of Dutiable Value.

The inclusion of an item of inland freight in the dutiable value of foreign merchandise, where it is not shown that the original place of shipment is the principal market for the goods, was affirmed by the board in a decision by General Appraiser Fischer. The merchandise in question consists of chilled iron shot. It appears from the official record that it was shipped from the factory at Airdrie, Scotland, to Glasgow, and that the freight charge thus incurred was included as a part of the dutiable value of the goods on appraisement. The importer in the case is set down as the Central Vermont Railroad Company, which acts as forwarding agent for the actual importers. In overruling the importer's contention, the board's decision says:

The consular invoice is not part of the record here, and we must find in default of proof to the contrary that the factory at Airdrie is not a principal market for the said goods. The testimony offered is of no weight in determining the issue, and there is nothing whatever present in the record to disprove the fact that the charge here in question is necessary to make up the proper foreign market value of the merchandise.

Wire Rat Traps.

A decision adverse to the Burditt & Williams Company, Boston, has been rendered by General Appraiser Fischer. The contention of the importer was that wire rat traps are made of wire valued at not more than 4 cents per pound, and that therefore the goods are dutiable at only 2 cents per pound plus 1.25 cents per pound. The decision says that in each of these cases there is a report of the local appraiser that the wire rat traps in question are manufactured from wire smaller than No. 16 and valued at more than 4 cents per pound. As the importing company failed to present evidence in support of its contention at the hearings, the board is constrained to affirm the classification imposed by the collector.

Hugo Sack of Rath, near Düsseldorf, Germany, has been granted a patent in Great Britain on an I-section which is to serve as a substitute for the so-called bulb shape, and is particularly intended to be used for frames in shipbuilding. The new section has parallel flanges, the lower flange being provided with sharp outer corners to form good joints with the outer skin of the vessel, while the upper flange has the outer and inner edges rounded in order to avoid inconvenient projecting sharp edges.

The Barry & Zecher Sensitive Drill.

The No. 1 self-adjusting friction sensitive drill made by the Barry & Zecher Company, Lancaster, Pa., has a number of features claimed to be peculiar to it. them is that the tension is automatically applied to the friction disk so that the proper friction with the friction wheel is always obtained without jamming them into unnecessarily hard contact, and the result is that considerable wear of the friction wheel is saved and it is permitted to slide freely along in contact with the friction disk in the altering of speeds.

Tight and loose pulleys are dispensed with by means of a mechanism that instantly raises and lowers the friction disk, bringing it in and out of contact with the friction wheel. A single pulley is therefore all that is

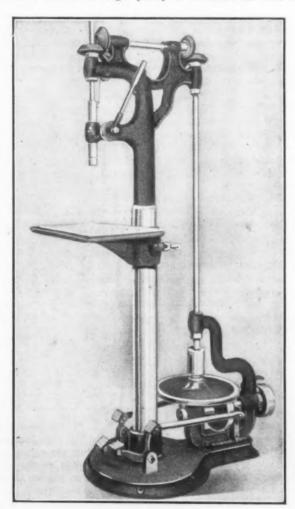


Fig. 1 .- Standard Drive The No. 1 Self-Adjusting Friction Sensitive Drill Bullt by the Barry & Zecher Company, Lancaster, Pa.

necessary for the drive, so that less belting is required and no countershaft at all. The engaging and disengaging mechanism is operated by a foot treadle on the left side of the drill. On the right side of the drill is the foot treadle which operates the speed changing mechanism. With the stop and start and change of speed operated by the feet, both of the operator's hands are left free to manipulate the work on the drill table and operate the lever to raise and lower the drill spindle.

For each change of speed the drill has a positive stop. When the foot treadle on the right side of the drill is pressed to change the speed the friction wheel slides along in contact with the friction disk and will instantly stop at any point when the foot pressure is removed from the treadle. Drilling at this speed can continue without keeping the foot on the treadle; thus one may set the speed with the foot for any size of drill to drill any kind of material without danger of the friction wheel creeping to a different speed. The drill is most sensitive when the speed is high and most powerful when the speed is slow.

The lever that operates the drilling spindle has a ratchet handle, and the spindle is counterbalanced by a weight inside of the column. The table is adjustable on the column and can be instantly changed to any position by using an attached wrench. Between the collar on the spindle and the sleeve is a ball thrust bearing.

Fig. 1 shows the machine as arranged with the standard type of drive, and in Fig. 2 is a detail showing the only change in the machine made when it is provided with right angle drive. The advantage of the right angle drive is that with it any number of drills can be placed in a row under a line shaft and driven directly from it without twisted belts.

The following specifications apply to both machines: Each will handle any size drill up to 9-16 in.; the greatest distance from the spindle to the table is 36 in.; the vertical movement of the spindle, 51/2 in.; a hole may be drilled to the center of a 13-in. circle; the smallest diameter of the spindle is 34 in.; the lower end of the spindle is provided with a No. 1 Morse taper; the driving pulley is 5 in. in diameter by 1%-in. face, and is intended to run at 500 rev. per min. Including the oil grooves, the table is 16 x 13 in. in area, and inside of the oil grooves is a working area of 13% x 10% in. The net weight of the machine is 300 lb.

By the system of oiling the friction disks are always dry and consequently there is claimed to be no slipping.

The Independent Pneumatic Tool Company.-At the annual meeting of the stockholders of this company, recently held at Jersey City, N. J., the following directors were elected: James B. Brady and W. O. Jacquette, New York; John P. Hopkins, M. S. Rosenwald, James J. McCarthy, S. Florsheim, John M. Glenn and John D.

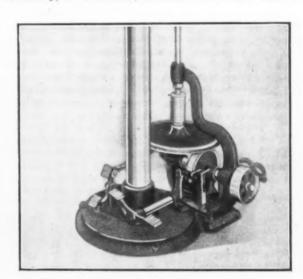


Fig. 2.-Right Angle Drive.

Hurley, Chicago; John R. Turner, Jersey City, N. J. At the annual meeting of the directors, held in Chicago, the following officers were elected: James B. Brady, president, New York; W. O. Jacquette, first vice-president, New York; John D. Hurley, second vice-president, Chicago; A. B. Holmes, secretary and treasurer, Chicago. The annual report shows that the company is in excellent financial condition, and that during the quarter ending December 31, 1908, 40 per cent, more business was transacted than in the corresponding period of 1907. This company, whose general offices are in the First National Bank Building, Chicago, manufactures the Thor piston air drills, reversible flue rolling, reaming, tapping and wood boring machines; pneumatic riveting, chipping, calking and beading hammers; pneumatic saws, motors, and other air appliances. It has sufficient orders on its books to keep its plant at Aurora, Ill., running for several months at its full capacity. Its export as well as domestic business is improving, and there is every indication that 1909 will be the banner year since the organization of the company.

The Pacific Northwest.

SEATTLE, WASH., December 31, 1908.—With the 1908 record of building permits in Seattle exceeding the previous high record of \$13,500,000 made in 1907; with more railroad work under way, about to be undertaken, or nearing completion, than in any other part of the country; with an exposition to be opened the coming summer, expected to attract worldwide attention to the Pacific Coast, Alaska, Yukon territory, the islands and the other countries bordering on the Pacific; and with general business conditions thoroughly righted, the people of the Pacific Northwest look forward to the most active development year they have yet seen. The railroad work, the projects requiring large building construction, and the establishment of new industries promise a good demand for iron products.

The Irondale Steel Company Reorganized.

James A. Moore has just returned from New York with the announcement that he has floated a bond issue of \$500,000 for the Irondale Steel Company. He has reorganized a company with a capital of \$1,000,000, having associated with him several prominent Seattle and Eastern capitalists. The company will commence immediately the construction of two open hearth steel furnaces at the plant at Irondale, located on Port Townsend Bay. At the same time the first merchant steel bar mill west of the Rockies will be installed. The products of the plant, in addition to steel bars, will be small rails, channels and skelp, which is to be used in a tube mill, also to be erected.

Mr. Moore expects to spend \$400,000 in the erection and equipment of the plant, which he hopes to have in operation by June 1. It is eventually to employ 400 men. The new corporation takes over the entire iron and coal properties owned by Mr. Moore's interests, including tracts on Vancouver Island, British Columbia, and in Snohomish, Skagit and Pierce counties, Washington, representing about 3000 acres of iron ore and 2000 acres of coal lands. The company plans to develop the coal properties on the line of the Tacoma & Eastern, south of Tacoma, and to put in coke ovens. Owing to the high freight rates on products from the East, and the fact that he is confident the ore can be laid down here as cheaply as at Pittsburgh and the coke provided on equally advantageous terms, Mr. Moore is optimistic as to the success of the enterprise, on which he has worked for years. He says: "Our success means more than is apparent on its face. This will be the first complete steel plant west of the Rockies, and I have been promised by iron and steel men of New York and Pittsburgh that if we can furnish practical demonstration that steel can be produced on the coast, they will come forward with \$10,000,-000 capital to develop the industry on an extensive scale.

Forestalling the Advance in Freight Rates.

Owing to the advance in transcontinental freight rates January 1, the coast agents of iron and steel companies have been busier during the past few weeks than ever before placing rush orders on all the commodities handled. The merchants have been heavily stocking up before the increased tariff goes into effect.

The fourth-class machinists at the Puget Sound Navy Yard have forwarded a protest to the Navy Department against the new wage scale compiled by the board of wages at the yard, which fixed their compensation at 16 cents less than \$4 per day, the minimum at which they claim the union will permit them to work.

Railroad Improvements.

Great interest attaches to the activity in construction promised by the Harriman interests, represented in this State by J. D. Farrell, vice-president and general manager of the Oregon & Washington, the local corporation building the line from the Columbia River to Puget Sound. Mr. Farrell says that a good portion of the \$50,000,000 for which Mr. Harriman asked to extend lines and branches, would be spent in the State of Wash-

ington. Soon after the first of the year work will commence on the foundations for the passenger station in Seattle. All the new work in road building will be done with a view to minimize the cost of maintenance, with steel bridges where wooden ones would usually be used, and the road bed the best than can be made. Immediate construction of the Tacoma tunnel is planned, and the contracts for the Grays Harbor branch will soon be let. This latter branch, running over to the coast, will be rushed; it calls for three steel bridges, including a draw span in the one over the Chehalis River. The Milwaukee, the Northern Pacific and the Harriman lines have had engineering parties locating routes on the Olympic peninsula, lying between the Sound and the Pacific, and much rivalry is soon expected in that field, which is heavily timbered, and represents the largest undeveloped area in the State.

Recent announcement by J. P. O'Brien at Portland, general manager of the existing Harriman lines in the Northwest territory, of an order by the Oregon Railway & Navigation Company for freight equipment, amounting to \$1,250,000, brings the total orders placed for his territory to \$3,250,000.

President H. R. Williams of the Chicago, Milwaukee & St. Paul in Washington expects the line to be connected through to the coast 30 days earlier than had been planned by the officers, or some time about May 1. The Milwaukee yards in this city are filled with construction material, including steel for bridges, great piles of rails, frogs, switches, plates and everything required for the laying of yard tracks here and the completion of this end of the line. The Columbia River Bridge of the road, having 16 spans, is two-thirds completed.

The contract was recently let at Spokane for the construction of 50 miles of the Idaho & Washington Northern from Newport to the Metaline mining camp, from which there is expected to be a heavy tonnage.

Bids for the construction of a triple screw turbine steamship, the first of its kind for Puget Sound and the third for Pacific waters, have been called for by the Puget Sound Navigation Company. It will cost between \$200,000 and \$300,000,

C. J. Erickson, who has the contract for the new \$2,000,000 dry dock at the Puget Sound Navy Yard, expects to have work under way very soon after the first of the year. The dock must be completed within 36 months. Bids will soon be called for for the \$150,000 naval hospital at the Puget Sound yard.

Orders were recently placed by C. F. White, president of the Metropolitan Building Company for 1000 tons of steel for the new 11-story Henry Building, the second of the group being erected on what is known as the old University tract, Seattle. The order was placed at 40 cents a ton less than that for the White Building a year ago. The Leary Building, under construction at Second avenue and Madison street, designed ultimately to reach 18 stories, will be completed for nine stories at present, instead of six, as planned when work was started. The building of the Arctic Club, of which it was intended to complete only the first four stories, will be run on up for the full hight of seven stories at once. A large number of tall buildings are planned for construction the coming year. Bids recently opened for the United States Government Building at the Alaska-Yukon-Pacific Exposition ranged from \$235,999 to \$385,000.

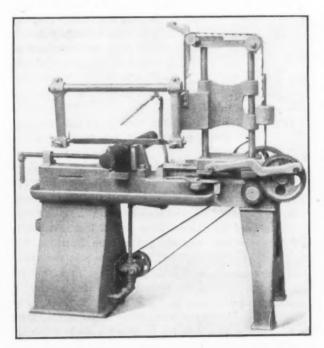
W. T. P.

The Virginia Pig Iron Association.—A number of the producers of pig iron in Virginia have formed an association under the name of the Virginia Pig Iron Association, for the purpose of exchanging views in regard to matters affecting the sale and production of pig iron. The association will be conducted along the same general lines as the Eastern Pig Iron Association. The officers of the association are as follows: President, E. C. Means, Low Moor Iron Company, Low Moor, Va.; secretary, H. L. Haldeman, Pulaski Iron Company, Pulaski, Va. The headquarters of the secretary are in the Real Estate Trust Building, Philadelphia, Pa.

The No. 3 Sterling Power Hack Saw.

The Diamond Saw & Stamping Works, Buffalo, N. Y., manufacturer of Sterling hack saw blades, frames, emery wheel dressers and cutters and power hack saw machines, has recently placed on the market a new high speed Sterling power hack saw machine which takes blades from 17 to 21 in. long, and can be run at from 80 to 100 strokes per minute. It is contended that this machine is cheaper in first cost and operating expense than a cold cutting-off saw and will do as much work.

The No. 3 machine has a stationary vise and weighs about 400 lb. It is solidly constructed in every way and has exceptionally large bearings; in fact, it is claimed that there is not a hack saw machine on the market even of larger capacity that has such large bearings. The main driving shaft, on which the main pinion gear is fastened, is 17-16 in.; the large gear shaft is 13-16 in. The two main bearings on which the slide works are



The No. 3 Sterling High-Speed Power Hack Saw Machine Bullt by the Diamond Saw & Stamping Works, Buffalo, N. Y.

made from 1-in. square stock, giving an area of working surface of 8 in. The upright rods on which the saw frame is attached are 1 3-16 in.

Lost motion can be taken up on all bearings except the main driving shaft, for which wear adjustment has been found unnecessary. It is particularly an advantage that the bearings carrying the large gear shaft are adjustable, for when the gears become a little worn and the machine has a tendency to pound the lost motion can be taken up.

The machine is equipped with tight and loose pulleys, automatic shut off and gravity feed. The gears by which it is driven are milled and have broad faces, giving ample wearing surface. The machine is equipped with a pump which, when running at high speed, can be used to discharge a lubricant on the saw, thus saving the wear and tear of the blade and increasing the efficiency of the machine. The front leg of the machine is a cabinet frame containing a tank for soda water or any other lubricant, and is connected with the suction side of the pump. The vise swivels, allowing cuts to be made at any angle up to 45 degrees. Pieces of section up to 8 x 12 in. can be cut and any length.

The blades can be put in the machine with the rake of the teeth either forward or backward. After using one-half of the blade, by reversing the saw in the frame the other half may be used and equally as good results secured. Thus the entire blade is used and nearly one-half the cost of these large and expensive blades is saved. This feature alone, it is declared, will in time pay the original cost of the machine.

In a test this machine equipped with a Sterling back saw blade has cut off 2-in, round bar machinery steel in from 4 to 6 min, and 60-lb, steel rails in from 6 to 10 min.

The American Blower-Sirocco Consolidation.

Announcement is made of the consolidation of the American Blower Company, Detroit, Mich., and the Sirocco Engineering Company, New York, as the result of which the future business of the Sirocco Engineering Company will be carried on under the name of the American Blower Company. The main offices of both organizations will be in Detroit. The capitalization of the American Blower Company has been increased from \$500,000 to \$1,500,000, and the company has been incorporated under the laws of the State of New York. James Inglis will remain as president of the new organization, and William C. Redfield, president of the Sirocco Engineering Company, and Charles H. Gifford, who was until about a year ago general manager of the B. F. Sturtevant Company, will occupy important positions in the new corporation. R. F. Still will continue as secretary of the American Blower Company.

The Sirocco Engineering Company was organized in 1903 and has hitherto maintained its main offices at 90 West street, New York. S. C. Davidson, who organized the Sirocco Engineering Company in Great Britain, and who has charge of the parent Sirocco Works in Belfast, Ireland, is financially interested in the new consolidation. The factory of the Sirocco Engineering Company at Troy, N. Y., and the plants of the American Blower Company at Detroit, Mich., will continue in full operation under the management of the main office at Detroit. American Blower Company purchased during 1908 the complete factory and plant formerly operated by the Northwestern Foundry & Supply Company, Detroit, for additional manufacturing facilities. The large triangular shaped property nearby, owned by the company since 1881, had become entirely covered by buildings. In addition the company recently purchased a large tract of land in Detroit, on which it is expected that new buildings, covering approximately 175 x 300 ft., will be erected.

The New York State Steel Company's Reorganization.

At a meeting of the stockholders of the New York State Steel Company, Buffalo, N. Y., held last week the plan for the reorganization of the company was put into effect by the election of a Board of Directors and of new officers representing the interests that have taken control. The officers elected are: President, Frederick N. Beegle, Beaver Falls, Pa.; vice-president, Frederick Davidson, Pittsburgh; secretary and treasurer, Louis R. Davidson, Beaver, Pa. The Board of Directors consists of the three officers named and Spencer Kellogg (formerly president), John D. Larkin and Seymour H. Knox of Buffalo and George Davidson, New Brighton, Pa. The Executive Committee is composed of Frederick N. Beegle, Spencer Kellogg and Louis R. Davidson.

The new officers are men of long experience in the steel business, all being connected with the Union Drawn Steel Company, Beaver Falls, Pa., and owners of a Canadian branch at Hamilton, Ont. They also control the D. R. Davidson Coal & Coke Company, organized for the purpose of developing 3000 acres of coal lands on the Monongahela River. The companies thus controlled by the new management will be of great help to the reorganized New York State Steel Company, which also owns rich iron ore mines in Minnesota, and will thus have valuable facilities for supplying its ore, coal and coke, as well as for marketing its finished products through the Union Drawn Steel Company, which has agencies in all the principal cities in this country and several in Europe. The company will proceed immediately with the completion of the blast furnace now under construction. The open hearth department is complete and ready for operation. The product will for a time consist of pig iron and billets.

THE IRON AGE

Established in 1855.

New York, Thursday, January 21, 1909.

Entered at the New York Post Office, as Second Class Mail Matter.

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Southern Pig Iron in 1908.

The fact that Southern pig iron producers operated a larger proportion of their capacity last year than their competitors in other sections has been recognized in a general way as a feature of the pig iron market of 1908. Yet this has not been a direct conclusion from the course of prices of Southern iron, since for a portion of the year Northern irons were quoted higher and at other times lower than those from the South, in those districts in which the competition between the sections is apt to be sharpest. In calling attention in our issue of June 11, 1908, to the fact that in the preceding month sales of Southern foundry irons at the low prices made by Alabama sellers in May were much larger than those of Northern pig iron we made a comparison of the total merchant pig iron production in May with the merchant pig iron production in the South in that month for the years 1907 and 1908. Southern merchant pig iron production was described as that of Virginia, Kentucky, Tennessee, Georgia, Alabama and Texas, and coke iron was taken for comparison, charcoal iron being a negligible quantity. It is now possible to make a similar comparison for the last month of 1908 and to put the December figures alongside those given for May. The merchant furnace output of the South is arrived at by deducting the production of the furnaces at Ensley, Ala., which directly supply the steel works of the Tennessee Company. The showing is as follows:

	Total	Southern	Per cent.
me	erchant	merchant	of
pi	ig iron.	pig iron.	Southern.
May, 1907	779,777	197,736	25
May, 19084	104,323	134,195	33
December, 1908	350,573	187,518	29

It appears that the Southern merchant furnaces, from producing one-fourth of the merchant pig iron in May, 1907, made one-third of the total in May, 1908, when output was only fractionally above the level reached in the drastic curtailment of the four preceding months; also that in spite of the important additions to Northern merchant pig iron capacity in the last quarter of 1908 the Southern merchant stacks still closed the year with a considerably higher proportion of the total than in the highly prosperous period represented by May, 1907.

Taking the entire coke pig iron production of the Southern States named above, the comparison between 1907 and 1908 shows that the South kept up a much better scale of operations than the North. We have already estimated the total pig iron production of 1908 at about 15,875,000 tons, or 61.5 per cent. of the total

of 25,781,361 tons in 1907. The Southern States mentioned produced 2,685,222 tons of coke iron in 1907 and approximately 2,028,500 tons of coke iron in 1908, or 72 per cent. of the former figure. Taking Alabama alone a much more striking comparison is made with its high record year, 1907, and with the next highest year, 1906. We give the figures by half year periods:

	Gross tons.
First half of 1906	 825,090
Second half of 1906	 849,758
First half of 1907	 861,771
Second half of 1907	 824,903
First half of 1908	 605,617
Second half of 1908	 810,000

Here the 1908 production is shown to have been 84 per cent. of that for 1907 and nearly 85 per cent. of that for 1906. It is significant that in the second half of 1908 the Alabama production was 98 per cent. of that for the second half of 1907. There will be an important gain in the showing for that State when the Ensley furnaces are all reconstructed on modern lines. Ore supply has been a handicap to the expansion of the Alabama iron industry in recent years, and it is surprising that even in 1908 the limitations upon the operation of certain iron mines, due to insufficient development and equipment, were at times a factor.

It is not well to generalize broadly on the record of a single year. But it is natural to look for a reason for the close approach of Alabama blast furnaces last year to their record of 1907 (with the Ensley group as well as the merchant stacks making less iron than in 1907) and for the increased share of the foundry iron business taken by the Southern merchant furnaces in 1908. Prices do not account for it, since for a part of last year Southern furnaces were quoting higher than Northern furnaces in competitive markets. In times past the ascendency of Northern or Southern iron in a given market has alternated according to their respective prices. It would appear that Southern iron is less and less being crowded upon Northern consumers to the displacement of-local irons; also that the Northern foundries' normal requirements of the higher phosphorus Southern irons for mixtures may have reached the point at which they take up a large proportion of the output of such irons, even in slack times, while in boom periods they must get along with less of them than they could use to advantage.

A Step Toward Industrial Peace.

Recent rulings of the Federal courts have brought within the reach of manufacturers a simple means of protection against strikes or difficulties with employees. Where a contract relation exists between the employer and his men, with a definite time to run, it is unlawful, during the period of the contract, for any one, by organized effort or otherwise, to procure a breach of the contract. Under ordinary conditions of employment the courts recognize the right of men to strike, and the right of organizations to participate peaceably in strikes; but where a contract relation prevails it is unlawful to use even persuasion to procure a breach of contract, and it is unlawful for any body of employees to act in concert with a view to forcing a change in the contract relation during the life of the contract. This same point came up in the Lynn, Mass., Building Trades Council case, in which the Supreme Court of Massachusetts held that the strike in queston was a combination to make the trades council the arbiter of questions arising between employers and employees under contracts still in existence. The court held that "to force the employer to submit to a delegate

body of employees his rights under an existing contract by a combination for that purpose is not a justifiable interference with the employer's business." The rules of law which apply in the protection of contracts afford a degree of protection which cannot be obtained under the conditions that usually prevail in industrial disputes.

It is not necessary that the employer should enter into any formal contract or agreement with an organization of men nor with each individual employee. If a schedule of wages, hours and regulations is posted in writing in the shop, specifying a definite time that it is to remain in effect, and the attention of the men is called to it, the acceptance of work by the men creates a contract relationship that is binding upon the parties during the time specified. The individual employees may quit at any time, or may be discharged or laid off, or the shops may be closed, but during the time specified no change can be made in the wages or conditions of employment as specified in the schedule, without the mutual consent of the parties. The employer assumes the same obligation as the employee, to maintain and respect the wages and conditions of the posted schedule. This form of contract, therefore, would only be available in well established industries where the management can look ahead for a year in fixing the wages and conditions that are to prevail.

In a recent case that has attracted considerable public interest a contract relation existed between the employer and the employees, established in the manner above suggested, by posting at the beginning of the year a schedule which was to remain in effect during the year. Subsequent troubles grew out of a breach of what the courts recognized as a contract. In reviewing the case the Federal court said:

When persons enter into a contract their status with respect to each other and the balance of mankind is straightway altered; each is vested with rights which he did not have before, in that each is entitled from the other to the performance of the obligations of that contract. The right to the performance of these obligations the balance of mankind are required to respect; not even the law-making power of all the States of the Union severally assembled is potent to deprive either by even a jot or tittle and with these obligations cannot interfere; for in the Constitution it is written, "No State shall . . . pass any law impairing the obligation of contracts." When came labor unions to be of greater power and majesty than these?

labor unions to be of greater power and majesty than these?

The breach of a contract by a party to it being "unlawful" (not unlawful in the sense of criminality, but unlawful in the sense of a violation of the "civil" rights to its performance), the act of a third person in persuading him into the breach is equally "unlawful"; and if a combination of two or more persons contemplates the breach of a contract through even the persuasion of a party to the contract, the combination comprises an "unlawful act," and the combination alone and in itself is a common law crime.

Where this contract relation has not prevailed, and some or all of the men employed have quit, exercising their right to strike, the employer can protect himself for the future. If a contract relation is established in the manner indicated with those who desire to continue at work or with those who seek employment, the law of contracts can be invoked to protect the business against interference in any form. Picketing becomes unlawful, because it is an interference with the rights of parties to a contract. The courts have afforded evidence of their power to deal summarily with a boycott or any interference with the sale of the products.

If a union of temperance workers were to picket a saloon, with the avowed intention of driving the proprietor out of business unless he submitted to their dictation, the police authorities would make short work of the disturbance. There is no reason in morals why a manufacturer, whose payroll feeds and clothes the community, should not enjoy rights equal to those of the saloon-keeper. An aggressive and persistent propaganda has

done much to distort the public view of the rights of the employer, and it is a long step toward industrial peace when the courts reassert and apply the dictates of law and reason.

Failures in the Apprentice System.

Several cases have arisen lately in which shop owners have come to look upon their apprentice systems as onerous and troublesome institutions. Disappointments in the young men themselves have followed one another rapidly, and parental complaint has added to the discomforts of the responsible heads. In one shop in particular, where an attitude almost of disgust has been created against the system, the large apprentice class is trained under exceptional environments. The shop buildings are entirely modern, with the best of light and ventilation, and with the scrupulously carried out application of hygienic principles in the way of cleanliness. Great care has been taken in selecting the foremen who come in contact with the boys. Instruction in engineering subjects is provided at the expense of the company in evening classes and shop time is given to the apprentices, without loss of pay, for other educational purposes. The pay is quite up to the average and probably higher. Yet the employers complain that the more the boys are given the more some of them seem to expect. Discouragement has succeeded the enthusiasm with which the course was planned and inaugurated. This may be an unusual experience; it is to be hoped that it is. Yet it suggests that if a child may be spoiled by too much kindness the same maxim may apply to boys of apprentice age.

Probably the solution of the difficulty, or at any rate its partial solution, lies in getting rid of the incompetents and discontents. The causes of discouragement are but the natural outcome of the attempt to revamp a long established institution along new lines. There must be experiment, and where there is there must be more or less degree of failure. The advocates of trade schools will see in these cases an argument in favor of their method of training young men as compared with the shop apprentice system. It has been demonstrated, however, that the two ideas can be combined successfully; that a boy can be given training in a classroom and in the shop during the same period of his life and benefit by the experience. There must be a certain percentage of failures under every educational system. The engineering schools graduate a comparatively small number of their freshmen classes. In college, where the requirements of hard work are less, the percentage is naturally larger. The test of the boy lies in his ability to labor persistently, accepting the conditions imposed upon him by the curriculum, no matter whether it is that of the technical school, the trade school or the apprentice class. success of students varies through very wide limits. The most pronounced failures and physical incompetents are eliminated early. Others drop away from time to time. When graduation day arrives there is still a wide difference in the degree of success, but taken as a whole the best of the original class is left. Consequently, it may be argued that an apprentice system is by no means a failure because a noticeable number of its indentured youths prove to be unfit, either from lack of natural bent, or because they are unable through faults of their earlier training, or of contemporary outside influences, or of inborn traits to stand the prolonged routine of their apprentice years.

The failures should be dropped early. They constitute financial loss, to be sure, because in the earlier months of their training they give nothing for what they

receive of their employers. But those who survive will be worth much more than the average would have been if all had remained. It is in the groups of boys who pass into manhood during a career in the shop which has been a success to themselves and to their employers that good men of the future will be found. The lazy or dissatisfied or unfitted would not assist much in adding to the supply of skilled workmen, nor would they develop into men of executive force as foremen to direct the work of others.

The amount of trouble and loss of time to which a manufacturer will submit is a factor which must be taken into account in connection with the apprentice system. Some of them have asked themselves if it is worth their while to suffer frequent distracting annoyances in connection with the work. Every employer realizes the discomforts which come from contact with the families of his workmen-the wives and mothers and fathers who attempt to reach the head of the concern to tell their grievances. Most of these cases can be shouldered upon the superintendent or foremen, but with the apprentice system it is a little different. The existence of the contract covering a period of years has to be taken into account. Many boys are indentured by friends or acquaintances of the owners. There is no doubt that the system has its drawbacks. But the results as time goes by should make up for the earlier trials and perplexities. The graduates of the course will include very useful men, who will doubtless relieve the employer of many burdens as they advance through the works. When finally the balance is struck between the initial troubles of the system and its later results, the latter seem bound to reveal a substantial margin.

Labor union journals continue to give us the reverberations of the "free speech and free press" hue raised over the sentences for contempt in the antiboycott cases. Freedom to do injury to person or property was never guaranteed by constitution or statute, and the libel law has never been regarded as unjust interference with a free press. We are only finding in the present case a repetition of the familiar outcry of the violent type of labor union against interference with the use of any and all means the union may select to force its will upon a noncompliant manufacturer or workman. It is interesting to note, moreover, that while profound respect for the courts as an institution is avowed in the labor union comments on the Gompers case, the individual judge who interferes with the union plan of attack is held up for execration. Something of the same fine discrimination is shown here that is evident in the union contention that "the right to engage in business is not a property right, but only a personal right "-and therefore naturally not entitled to the protection of the courts!

James E. McNary, Machesney Building, Pittsburgh, has been appointed general sales agent in the Pittsburgh District for Clark Brothers, Belmont, N. Y.. manufacturers of duplex gas engines from 50 to 1500 hp., the latter being specially adapted to electric service on account of their high speed, made possible by an improved valve mechanism. Mr. McNary has also secured the agency for the Filer & Stowell Company, Milwaukee, for its Corliss engines in sizes from 500 to 5000 hp., for use in iron and steel works.

The United States Company, Canton, Ohio, has received an order from the Ford Motor Company, Detroit, for 2100 tons of vanadium steel. This is claimed to be the largest order for vanadium steel ever placed.

CORRESPONDENCE.

Vanadium Compared with Other Steel Alloys.

To the Editor: In an article in The Iron Age of November 12, 1908, the writer raises the question whether vanadium is better than nickel, chromium, tungsten, &c., for use in steel, and quotes some tests which seem to show that it is not. In that article it was not thought necessary to state definitely and specifically that vanadium did impart valuable qualities to steel. That fact is a fact that has been so amply demonstrated that it was simply taken for granted throughout the article. But in justice to vanadium, as well as to prevent all possible chance of misunderstanding as to his position, the writer begs to take opportunity to say positively and emphatically that vanadium has been proved over and over again to be a valuable constituent in steel. In the various scientific journals of recent years, especially in the very valuable and exhaustive paper by Capt. H. Rial! Sankey and J. Kent Smith in the Proceedings of the Institution of Mechanical Engineers for 1904, this fact has been abundantly shown. So that to-day the question is not whether vanadium is any good at all-that question was settled long ago-but whether it is any better or just as good as the other special elements used to improve the qualities of steel.

To the steel maker this is an interesting and important question, and it is to be earnestly hoped that experimenters will take it up. In this connection it must be borne in mind that comparisons with ordinary carbon steels have no bearing on this question and no relevance If a lot of distinguished men in the iron trade should rise up and singly and in chorus, and in season and out of season, should declare it is their enthusiastic and unalterable belief that Bessemer steel is the best steel made at the present day, comparisons of tests on Bessemer steel made with tests on cast iron would obviously be no support to their contention, and it would be not enough to show simply the vast superiority of Bessemer steel over cast iron. So, in the point under discussion, it is not enough now to show that vanadium steel is superior to ordinary carbon steel, or that vanadium-chrome steel is superior to chrome steel. We have got beyond that stage, and what we want to know now is the exact status of vanadium with reference to these other elements that improve steel. Can it do anything for steel the others cannot?

There is as yet no direct evidence on this question that the writer is aware of (outside of Guillet's tests previously discussed), except a single experiment made by Sankey and Smith, and brought up in the discussion of their paper to the Mechanical Engineers, in answer to the question made by Harbord as to how far the particular properties of the author's chrome-vanadium steels were due to the vanadium and how far to the chromium. In reply to this question, they give the following very interesting tests:

Elasti limit Tons Chromium (1%) and vanadium	stress.	gation.	Reduc. of area. Per ct.
(0.25) together49.4	60.4	18.5	46.4
Chromium (1%) alone25	38.2	30	57.3
Vanadium (0.25%) alone34.1	39.3	24	59

Here in the two last we have a direct comparison of a chrome steel not containing up to the limit of chromium. with a vanadium steel containing all the vanadium it will stand, and the comparison would seem to show that chromium will do more for steel than vanadium can do. For, had enough additional chromium been used as would have reduced the elongation to 24 per cent. the same as in the vanadium steel, then it is a fair assumption that the elasticity would have been equal to that of the vanadium steel, and the tensile stress much higher than that of the vanadium steel, and reduction not so very much lower. So this instance indicates that chromium is superior to vanadium, although it must be confessed the margin, if any, is a narrow one. When both are used, then of course, as Dr. Guillet has also demonstrated in his researches on quaternary steels (although he has not

investigated chromium-vanadium steels), the one element adds its effect to that of the other.

This is the only direct evidence on our question that the writer is aware of. But there is indirect evidence to be found, Guillet's article on quaternary steels in the Journal of the Iron and Steel Institute for 1906, Vol. 2. Here no tests on chrome-vanadium steels are made, and therefore no direct answer is given to the question whether or not vanadium is the best element to use in connection with chromium. But he does investigate nickel-vanadium steels, and we therefore can get at our point indirectly. For if we find from his experiments that vanadium is the best thing to add to nickel steels, then we may safely assume that it is the best thing to add to chrome steels also, and vice versa. We find as follows:

Tensile strength. Tons. Tons.	Blongation. Per cent.	Shock test.	Hardness.
Carbon, 0.20; nickel, 6; vanadium, 0.30 76	18	10	192
Carbon, 0.20; nickel, 6; vanadium, 0.50 72.5	19	8	235
Carbon, 0.20; nickel, 6; vanadium, 0.70 84	15.5	9	235
Nickel-chrome steels:	20.0		200
Carbon, 0.20; nickel, 5; chromium, 1114	10	16	269
Carbon, 0.20; nickel, 6; chromium, 1120	12	8	286
Carbon, 0.20; nickel, 6; chromium, 2157	7	8	375
Nickel-tungsten steels:			
Carbon, 0.20; nickel, 6; tungsten, 1 64	16	15	192
Carbon, 0.20: nickel, 6; tungsten, 2 74	14	12	207
Carbon, 0.20; nickel, 6; tungsten, 6 88	16	12	226

In these results no indication can be found that vanadium has any superiority over other elements as an "intensifier" of nickel, and it is therefore fair to infer that the same holds good in the case of chromium, and that nickel-chrome steels, tungsten-chrome steels, molybdenum-chrome steels, manganese-chrome steels, or siliconchrome steels would show up as well under tests as vanadium-chrome steels. But it is earnestly to be hoped that experimenters will give us direct evidence on this point.

—Since writing the above my attention has been drawn to a table of comparative tests issued and distributed by the American Vanadium Company, Pittsburgh, in which occur some direct comparisons of vanadium-chrome steels with nickel-chrome steels, and in which, therefore, may be found some light on our question, Does vanadium act more energetically and efficiently than nickel, tungsten, molybdenum, manganese, &c., in intensifying the effect of chrome on steel? Valuable, interesting and directly to the point as these tests are, nevertheless the answer they indicate to our question is not a perfectly plain and convincing one, and the testimony they give is to some extent contradictory.

In the first place, nickel is, perhaps, not the strongest element that might be selected for the comparison with vanadium, if J. Kent Smith is right in his opinion (and his results certainly bear him out in it) that dynamically nickel is poison to steel. But however that may be, it is the element that naturally would be selected first for comparison with vanadium, and we may feel exceedingly grateful to the Vanadium Company for these obviously thorough and careful tests. Picking out the vanadium-chrome and the nickel-chrome steels from the rest and comparing them, we find as follows, taking first the medium elastic limit section of results:

					Re-	Al-
		Elastic	Tensile F	longa	- duc-	terna-
		limit.	stress.	tion.	tion.	tions.
21.	Nickel-chrome steel	86,080	102,700	22	63.8	702
17.	Vanadium-chrome steel	67.520	100,600	26	61.7	1,406
15.	Vanadium-chrome steel	61,920	92,900	25	57.3	1,608

In the static tests the vanadium-chrome steels are, perhaps, a trifle inferior to the nickel-chrome steel. But in the dynamic test what an enormous difference is in their favor, and if all the other comparisons resulted so favorably to vanadium, we would have but little difficulty, indeed, in coming to a conclusion as to the true status of vanadium as compared with the other elements used to improve steel. But coming now to the high elastic limit series of tests, we begin to have a feeling of some doubt and hesitancy.

				Re-	Al-
	Elastic	Tensile E	longa-	duc-	terna-
	limit.	stress.	tion.	tion.	tions.
28.	Nickel-chrome steel134,500	150,300	15.5	53.5	579
27.	Vanadium-chrome steel 183,400	187,600	14	50.6	634
24.	Vanadium-chrome steel141,600	151,750	16	56.2	717

So far the results of this high elastic limit series do not disturb us in our good impression of vanadium. For, although the superiority of the vanadium-chrome steels over the nickel-chrome steel is not very great, yet it is perfectly palpable. But when we get to the following in the same series we begin to waver:

THE	same series	Me negin	to man	C. L. C		
					Re-	A1-
			Elastic	Tensile F	Clonga- duc-	terna
			limit.	stress.	tion. tion.	tions
28.	Nickel-chrome	steel	134,500	150,300	15.5 53.5	579
23.	Vanadium-chr	ome steel	195,300	208,500	10 36.3	480

The net result of the three comparisons is that in two-thirds of them vanadium is much superior to nickel, and in one-third of them much inferior. When we get to the low elastic limit series of results and find there the comparison to be enormously in favor of nickel (far greater in favor of nickel than the best of anything quoted for vanadium, the latter being "quality figure" 5858 vanadium as against 3855 nickel, and the former 704 vanadium as against 3787 nickel) our rout becomes complete and we do not know what to think. The low elastic limit series comparison is as follows:

					Re-	Al-	
		Elastic	Tensile Elonga- duc		- duc-	terna-	
		limit.	stress.	tion.	tion.	tions.	
9.	Nickel-chrome steel	56,520	81,370	32	68.5	978	
10	Vanadium, chromo steel	52 330	92,900	16	20.5	656	

To sum up, the steel maker who must produce steel that will withstand shock and alternating stresses, and who studies the Vanadium Company's table of results, to see whether he would do better by using 0.20 per cent. vanadium in connection with chromium, then by using 1.75 per cent, in connection with chromium, finds from this table that in one-third the number of cases he would do much better by using vanadium, in another third of the number of cases he would do much better by using nickel, and in the remaining third it would not make much difference which he used, although it is true the difference what there was would be in favor of vanadium. Now this is encouraging for vanadium as far as it goes, but hardly justifies extravagant claims and extreme ex-GEORGE AUCHY. pectations.

To the Editor: With reference to the further contribution of Mr. Auchy, in which he draws comparisons of various alloy steels, I would like to offer a few remarks.

The vanadium and chromium comparative trials which he instances, when read in conjunction with the context of the paper in which they were communicated by no means, in my mind, led to the inference which Mr. Auchy draws. Furthermore, the tests in question are of a purely statis nature, and were extensively compiled in answer to pure and direct questions on Mr. Harbord's part.

I know the unconquerable objection which Mr. Auchy entertains for statements which are not accompanied by direct figures; the present one is a shining example of the danger of taking excerpt figures without their collaterals. The summary of conclusions along a certain line is much more trustworthy, provided, of course, the man who draws such conclusions bases them on extensive laboratory observation and practical trial, and no reputable scientist would dare to publish sweeping conclusions unless the facts warranted him in doing so. I had thought that but few people now regarded elongation as the index alone of ductility, and that reduction of area played an important part in their observations.

Why your contributor should have gone to the trouble of basing a conclusion upon the premise of a pure assumption is beyond my conception; as a matter of fact, such excess of chromium as is required *per se* to greatly influence static strength not only embrittles the material but seriously deteriorates it dynamically, and begins to make it a more difficult proposition from the mill workers' point of view.

In view of your contributor's later remarks, the instances in connection with nickel-vanadium steel as against nickel-chrome and nickel-tungsten steels are rendered nugatory; furthermore, I, personally, owing to my strong views on the dynamic poisoning effect of nickel, am not a strong advocate for its use in any parts subject to alternating stresses and molecular disintegration.

In dealing with the property compilations published by W. L. Turner, the steels 21, 17 and 15 quoted by Mr. Auchy show up the enormous superiority of the vanadium steels, the quality figures being respectively 3855 for crucible nickel-chrome and 5858 and 5706 for crucible and basic open hearth chrome-vanadium steels respectively. And I might here, from the same table, draw attention to the fact that if a chrome-vanadium steel be chosen in which we have the alternating resistance comparative to the nickel-chrome, we find in steel No. 24 an open hearth vanadium steel, which has an elastic limit of 141,600 lb. against a crucible "treated" nickel-chrome steel elastic limit of 86,000 lb. In a large number of tests which were done for public demonstration, annealed crucible nickelchrome steel, with an elastic limit of 67,000 lb. per square inch, withstood about 700 alternations, while an open hearth chrome-vanadium steel of the same carbon content and of practically the same elastic limit (65,000 lb.) withstood 1500 alternations before fracture.

In the high elastic limit series of tests your contributor does not seem to think the superiority of vanadium steel over nickel-chrome steels very great, but even in the examples quoted the nickel-chrome steel has but little advanced its quality figure and the vanadium-chrome steels are still very high, the respective quality figures being:

		Q	u	a	i	ty	figure.
28.	rucible nickel-chrome steel						4,166
27.	rucible chrome-vanadium steel						5.883
24.	pen hearth chrome-vanadium steel				0		5,705

When we come to Mr. Auchy's last unfortunate comparison, we find that he has probably unwittingly compared a crucible wrought chrome-nickel steel of 0.36 carbon with a cast chrome-vanadium steel of 0.57 carbon, which I infer are included in Mr. Turner's tables as part of his argument on the casting question.

Accordingly, the unfortunate steel maker, who is so piteously described by Mr. Auchy as blindly groping in a fog of inconclusive and contradictory information, in a vain endeavor to extract therefrom something of use to him, would be led to infer from Mr. Auchy's own examples that he would receive very great benefit from vanadium, but that if he wants to obtain a material which shall resist alternating shock he should certainly avoid a cast, unwrought material of high carbon content, whether it contains vanadium or not. J. Kent Smith.

The Invention of the Universal Structural Mill.

To the Editor: I read with regret the letter signed James E. York in The Iron Age of January 14. Had this letter not been so personal I should not have troubled you further, but I have a grievance and it is right that I should be heard.

James E. York says in this letter that he and his brother built a model mill, embodying the vital features of the Luxemburg and the Bethlehem mills, and that they gave many practical demonstrations during 1890 and 1891, their patent having been taken out in 1889. If any one will compare the drawings and specifications of this patent with those of a patent, No. 98,807, issued to G. H. Sellers, Wilmington, Del., January 11, 1870, he will find that all the so-called valuable features of the York patent were anticipated in this patent of Sellers, which expired about three years before the Yorks received their papers. There is another point here: Toy mills are not always prototypes of successful commercial mills. If this toy mill embodied all the vital features of the Luxemburg and Bethlehem mills, what were the Yorks doing between 1889 and 1896?

In the second paragraph Mr. York speaks of the financial panic of 1895, and says that at this time he had almost completed the finishing mill; but, owing to the lack of funds, the blooming mill had to be dispensed with. The facts are that there had been no talk as to the necessity for a blooming mill until after I had proposed this addition in 1896, when, although the structural steel business was as bad as in 1893, the monied directors agreed to build, and did have, a blooming mill built. The

statement made by Mr. York that "the risk I took in attempting to reduce slabs and ingots was great, as the mill was designed for finishing only," would hardly be indorsed by the people who found most of the money for this plant. About the tonnage of beams rolled from slabs and ingots on this mill, the less said the better. I hardly think that in the three years from 1893 to 1896 there was, all told, as much steel passed through this mill as is passed through the Bethlehem Steel Company's mill in 5 or 6 hr. About the shape and finish of that steel that did pass through the Duluth mill, it would be wise for any one interested to refrain from talking or writing. Certainly if the Yorks had a good thing in 1889 they should have been able to demonstrate its value by 1896, inasmuch as a good deal of money was put into the business by New York capitalists during this time, and it was owing to their dissatisfaction with the results attained that a new management was installed at Ironton. Certainly, if the mill had been a success, no change would have been made, and the mill would have been continued.

Mr. York's statement that they sent long pieces of all the sizes they rolled to the New York office seems strange. I never saw a piece from their mill in New York longer than 8 or 9 in., and these pieces were of sections having no particular value in an economical sense. His statement about the supplementary mill and that he "personally designed and ordered a supplementary mill of the same character as that now used in both the Luxemburg and Bethlehem mills" tends to show how easily some men's minds can become warped and mistaken. If the Yorks designed a supplementary mill other than the one they patented it was never ordered for the Ironton mills nor was it ever placed therein. The only supplementary mill that was patented by the Yorks is described in the specifications and drawings No. 528,200, dated October 30, 1894. If anybody will take the trouble to look at these he will know at once that no such device is in use on a successful mill. The fifth paragraph needs no other remark from me than this: I have several mechanical patents and one process patent. I have built two large mills that are both mechanically and commercially successful. I myself do not know of any works for the manufacture of structural steel that was designed by the Yorks and that is in successful operation.

In the sixth paragraph Mr. York says that L. D. York was engaged by the president of the American Universal Mill Company to take charge of the starting of the "socalled Grey mill," and that the latter "suggested many changes, which were consented to by Mr. Grey, and the mill was finally made to operate." James E. York evidently is under a false impression. I have a letter from L. D. York in which he proposed certain changes, and I have a copy of my letter in answering in which I point out that his suggestions are impracticable. L. D. York had nothing to do with the starting of the Luxemburg mill, and was never present when a good beam was rolled. I feel that the letter written by James E. York will satisfy him, and I also am sure that it won't hurt me. Many people in the steel business know us both; they know what Mr. York has done and what I have done toward making an improvement in the structural steel manufacture and structural steel shapes, and to them I can safely leave the decision as to our respective merits.

Few patented mechanical devices or processes are brought to a successful issue without arousing the ill will of people who have had ideas which they could not make good; these people in the words of one of our courts "have romantic hallucinations regarding the value of the !deas which they are unable to bring to a successful culmination, and an attenuated capacity for comprehending the difference between their own ineffective efforts and the efforts of the patentee who succeeds in establishing a new discovery and an improvement in manufacture which will surely benefit the world."

Henry Grey.

NEWARK. N. J., January 18, 1909.

The Erie Forge Company, Erie, Pa., has awarded a contract to the Pittsburgh Bridge & Iron Company, Rochester, Pa., for the erection of three open hearth buildings—60 x 192 ft., 35 x 128 ft. and 60 x 94 ft., respectively—one story in hight, which it will add to its plant.

The Steel Corporation's Stock Offering to Its Employees.

'The United States Steel Corporation has issued the following circular to its officers and employees and to those of its subsidiary companies under date of January 5:

Annually for the past six years the corporation has oferred to its officers and employees and to the officers and employees of its subsidiary companies, the privilege of subscribing for a specified number of shares of its preferred stock under certain terms and conditions. The corporation stock under certain terms and conditions. The corporation now offers to such officers and employees the opportunity to subscribe for an aggregate amount of 18,000 shares of its preferred stock and 15,000 shares of its common stock at the price of \$110 per share for the former and \$50 per share

for the latter, subject to the following conditions:

1. All subscriptions shall be made with the express understanding that the decision of the Finance Committee of the United States Steel Corporation at all times shall be final with respect to the rights or interests of the subscrib-

ers, or any question relating to the same.

2. All subscriptions shall be for the value, at the subscription price, of one or more shares of common or preferred, or both, i. e., \$50 or multiples thereof, \$110 or multiples thereof, or some combination of \$50 or multiples thereof. of, with \$110 or multiples thereof, with the understanding that there may be allotted to the subscriber all or any part of his subscription in either common or preferred, or partly in common and partly in preferred, as such Finance Com-

mittee may determine.
3. The following table shows the maximum amounts which may be subscribed for, in accordance with the preced-ing section, by employees whose salaries or wages are with-

in the respective limits stated:

			May subscribe
			for a maximum stoo
			value, at rate of \$11
Employe	ees	receiving	for preferred and
		aries of :	\$50 for common, of
\$275.00	or	less	\$50
275.01	to	\$625.00	inclusive
625.01	to	799.99	inclusive
800.00	to	1.100.00	inclusive
1.100.01	to	1.500.00	inclusive
1.500.01	to	1.833.33	inclusive
1.833.34	to	2.166.66	inclusive
2,166.67	to	3.125.00	inclusive
3.125.01	to	3,208.33	inclusive
3,208,34	to	3.541.66	inclusive
3.541.67	to	3,958.33	inclusive
3.958.34	to	4.125.00	inclusive
4.125.01	to	4.791.66	inclusive
4.791.67	to	6.050.00	
6.050.01	to	6,750.00	
6,750.01	to	7.150.00	
7.150.01	to	7.750.00	
7.750.01	to		inclusive
8.250.01	to	8,250.00	inclusive 800
8.750.01	to	8,750.00 $9,250.00$	inclusive
9.250.01			inclusive 900
	to	9.350.00	inclusive 950
9,350.01	to	9,750.00	inclusive 990
9,750.01	to	12,812.50	inclusive
12,812.51	to	13,062.50	inclusive
13,062.51	to	14,062.50	inclusive
14,062.51	to	14.437.50	inclusive
14,437.51	to	15,312.50	inclusive1,210
15,312.51	to	15.812.50	inclusive
15,812.51	to	16,562.50	inclusive
16,562.51	to	17,187.50	inclusive
17,187.51	to	17,812.50	inclusive1.430
17,812.51	to	18,437.50	inclusive
18,437.51	to	18,562.50	inclusive
18,562,51	to	19,062.50	inclusive
19,062.51	to	19,687.50	inclusive
19,687.51	to	19,937.50	inclusive
19,937.51	to	33,500.00	inclusive

An employee of any class is not obliged to subscribe for the full amount of stock value which he may be privileged to subscribe for, but if he so elects he may subscribe for a lesser amount.

Payment of the subscriptions shall be made in monthly instalments, to be deducted from the salary or wages of the subscriber, in such amounts as he may desire, sub-ject to the provision that the minimum amount of a month-ly instalment shall be \$2.50 per share for preferred stock and \$1.25 per share for common stock and that no instalment shall exceed 25 per cent. of any one month's salary or wages. It is hoped that subscribers will, whenever possible, pay their instalments in even dollars, but if more than the minimum is paid it must always be in even dollars. scriber may have as much time as he chooses, not exceeding three years, to pay for his stock. Interest at 5 per cent. per annum will be charged on deferred payments on the stock.

5. From the date on which payments begin and during the continuation of such payments, dividends on the stock will be credited to the account of the subscriber as part of his payments until the stock is fully paid and issued to him, after which dividends will be paid in the same manner as the other stockholders. ner as to other stockholders.

6. In case a subscriber shall cancel his subscription before his stock shall have been fully paid for there will be

returned to him the exact amount of his payments made on account, with interest at 5 per cent. per annum on the same from time of payment, no credit being given him for dividends or for the special allowance referred to in third paragraph of Section 7, and no interest being charged on deferred payments; and thereupon his subscription and all interest in the stock to which the same relates shall cease and determine. Whenever such payments shall have been discontinued without the consent of the corporation for the period of three months, his account will be closed forthwith as of a date 30 days subsequent to his last payment and his payments on account returned to him as above stated. A subscriber who decides to cancel his subscription must cancel all of it, whether the allotment under his subscription

has been in common, preferred, or both.

7. As soon as the stock shall have been fully paid for, it will be issued in the name of the subscriber, it being understood and agreed that in case the allotment under any subscription includes both preferred and common stock, certificate will be issued until the entire subscription is fully paid, when the certificates for both classes of stock will be issued and delivered. The subscriber may then sell his certificates whenever he chooses, but as an inducement for him to keep them and to remain continuously in the employ of the corporation or of one or another of its subsidiary companies, and to have the same interest in the business that a stockholder or working partner would have, the following offer is made, viz.:

If he will not sell or part with the stock, but will keep it and in January of each year, for five years, commencing with January, 1910, will exhibit the certificates to the treasurer of his company, together with a certificate from a proper official to the effect that he has been continuously in the employ of the corporation or of one or another of its subsidiary companies during the preceding year, and has shown a proper interest in its welfare and progress, he will during each of such five years receive a cash payment at the rate of \$5 a share for each share of preferred stock and \$2.50 a share for each share of common stock.

Subscribers who may not have fully paid their subscriptions by January in any year, will, if their subscriptions are still in force, and they have otherwise fulfilled all the condiitions of continuous and faithful service as provided, be credited in their subscription account with the special allowance of \$5 per share on their subscriptions for preferred stock, and \$2.50 per share on their subscriptions for com-

8. If the subscriber shall remain continuously in the service of the corporation or of one or another of its subsidiary companies for five years, at the end of the fifth year

sidiary companies for five years, at the end of the fifth year the corporation intends that he shall receive a still further dividend, which cannot now be ascertained or stated, but which will be derived from the following sources, viz.:

All who subscribe for stock in January, 1909, and commence to pay for it, but who discontinue at any time during the five years, of course will not receive the \$5 or \$2.50 per share for such of the five years as remain after they discontinue. The corporation will however, now into a special continue. The corporation will, however, pay into a special fund at the end of each year the \$5 or \$2.50 payments that would have been made to such subscribers had they continued. This fund shall be credited with 5 per cent. annual interest, and at the end of the five years period the total amount thus accumulated will be divided into as many parts as shall be equal to the number of shares of preferred stock plus one-half the number of shares of common stock then remaining in the hands of subscribers who shall have con-tinued in such employ for the whole five years. The cor-poration will then by its own final determination award to each subscriber whom it shall find deserving thereof as many parts of such accumulated fund as he shall be entitled to on basis of the number of shares then held by him under this plan, i. e., one part for each share of preferred and one part for each two shares of common.

9. If a subscriber dies or becomes disabled while faithfully serving the corporation or one or another of its subsidiary companies, during such five years period, the money theretofore paid by him on account of the stock he was purchasing, or, if he has fully paid for it, the certificate of stock may be turned over by the corporation to his estate or to him, together with a sum equal to \$5 or \$2.50 per share for each of the five years not then expired, and also a pro rata amount of the special fund arising from forfeitures referred to in Section 8 preceding, which may have accrued at the

of his death or disability.

10. A subscriber may designate in his subscription the person to whom in the event of his death he desires the corporation to pay all amounts in connection with his subscription which would otherwise be payable to his estate. When such designation has been made, the corporation, upon satisfactory proof of death under the conditions of the subscrip-tion, will pay to the person designated, if then living, all amounts in connection with the subscription which would otherwise be payable to the estate of the subscriber. When such designation has been made the subscriber's estate shall have no claim to any such amounts, unless the person designated should die before the subscriber, and in that event

payment will be made to the subscriber's estate. By written notice delivered to the treasurer of the company by which he is employed, a subscriber may change the person designated.

11. Subscribing employees whose employment has been or may be suspended by reason of the temporary closing of the plants and who shall continue ready and willing when required to resume their service, will not be deprived of the bonus of \$5 or \$2.50 per share per year during such suspension. This need not interfere with their accepting employment elsewhere during such suspension. As presumptive evidence of such willingness to resume their employment, the corporation will accept (1) from the holders of fully-paid subscriptions, the presentation of the original certificate in January of each year, and (2) from the holders of partly-paid subscriptions, the retention by them of their subscription during the preceding year. The above period of suspension will not be counted as part of the three years limited for the full payment of the subscriptions, and during such suspension monthly payments will not be required. Failure to present the original certificate as provided, or

Failure to present the original certificate as provided, or the withdrawal of a partly paid subscription or the failure to resume employment when requested, will constitute and be accepted as conclusive evidence of the termination of this employment by such employee and a relinquishment of all benefits referred to in this circular. In case of the death during such suspension of any such subscribing and continuing employee, his estate or his designee as above, will be entitled to the same benefits accruing to his subscription as if he had died while under employment.

12. Subscriptions will be received until February 3, 1909, and allotment will be made a few days later. The first deductions will be made from February salary or wages.

Trade Publications.

Electrical Equipment.—General Electric Company, Schenectady, N. Y. Bulletins 4616, 4618, 4619 and 4622 and Circular No. 3700. The first of these explains the company's high voltage type H transformers, which are used in connection with long distance transmission lines and are designed for indoor operation. Bulletin 4618 is devoted to belt driven alternators for use in power plants. Bulletin 4619 deals with the effectiveness of automatic feeder regulators and explains their use. Indicators are treated of in bulletin 4622 and attention is particularly called to the company's polyphase maximum watt demand indicator, type W, which is suitable for recording the maximum load on alternating current circuits irrespective of power factor and voltage fluctuations. The circular illustrates the use of the multi-catch socket for electric lamps.

Rock Sawing and Polishing Lathes.—Elisha T. Jenks, Middleborough, Mass. Circular. Illustrates a combination lathe and saw having an 11-in. swing and a 4-ft. bed, which is designed for both cutting and polishing rocks and minerals. A diamond charged saw is used on the machine, and there are two cast iron laps for grinding. These are 10 and 11½ in. in diameter, respectively, and the equipment includes a felt-covered disk 10 in. in diameter for final polishing. The saw and laps may be run separately or together.

Pressure and Vacuum Gauges.—Standard Gauge Mfg. Company, Foxboro, Mass. Folder. Shows the company's model A standard gauge and explains its new independent movement, which is supported by the mounting in such a manner that the testing of the gauge cannot change the relative position of the working parts. The construction of the gauge is briefly described.

Radial Drills.—Fosdick Machine Tool Company, Cincinnati, Ohio. Loose leaf circular. Issued in a form that can be utilized as a proposal in making bids. The company's standard machines are described in specification form, including the 4, 5 and 6 ft. half and full universal radial drills. A half-tone engraving of the standard machine is included, together with illustrations of two types of motors which can be furnished with it.

Electrically Driven Tools.—James Clark, Jr., Electric Company, 520 West Main street, Louisville, Ky. Catalogue, 6 x 9 in.; 32 pages. Shows the Willey line of electrically driven tools, which include portable drills, breast drills, center grinders, hand grinders, sensitive drills, two and three spindle drills, radial drills, &c. A number of motors made by the company are also illustrated and prices are included.

Gas Engines.—National Meter Company, S4 Chambers street, New York. Bulletin. This is a reprint of an article which appeared in Cassier's Magazine, July, 1908, describing the carbon-monoxide gas producer and showing a number of installations of the producer operating Nash gas engines made by the National Meter Company.

Valves.—Chapman Valve Mfg. Company, 49 John street, New York. Bulletin No. 1. Several recent installations of the Chapman electrically operated valves are illustrated in this bulletin, including those in the New York and Brooklyn high pressure fire stations. The adaptability of the valves for municipal water stations, for hydraulic stations, &c., is outlined, and there are line drawings showing the principal dimensions of the Chapman standard valves.

Power Pumping Machinery.—Hill Machine Company, Anderson, Ind. Bulletin No. 5. This is addressed particularly to the export trade and shows a number of standard types of the company's power pumps, which include small pumps for house service and the larger standard sizes for use in extra heavy work. Directions for ordering are given, together with outlined drawings of the company's principal equipment.

Electric Breast Drills.—Willey Machine Company, Jeffersonville, Ind. Illustrates the company's simple portable electric breast drills, portable electric grinders and a 12-in. sensitive drill. The latter machine is also electrically driven.

Milling Machines, Die Sinkers, Profilers.—Pratt & Whitney, Hartford, Conn. Catalogue, 9 x 12 in.; 40 pages. Devoted particularly to precision tools especially adapted for high grade milling. Several types of hand milling machines and milling attachments are shown, including milling machine vises and other milling fixtures, together with profiling machines in a number of types and samples of finished work made on the company's profilers. A standard die sinking machine is also illustrated, with its various attachments, and the company's No. 3½ power milling machine, which is made only to order.

Turret Lathes.—Pratt & Whitney Company, Hartford, Conn. Booklet. This is a miniature of the company's large catalogue on turret lathes, which are briefly referred to, and a number of machines are shown together with samples of the work that can be turned out on them.

Steam Pumps.—American Steam Pump Company, Battle Creek, Mich. Calendar. Illustrates the company's works and three of its standard machines.

Alternators.—Fort Wayne Electric Works, Fort Wayne, Ind. Bulletin No. 1109 and publication No. 5016. The first describes recent installations of the company's alternators for very large power plants and includes a number of views of equipment of the kind recently built by the company. The booklet, entitled "A Practical Guide for Transformer Testing." contains information for testing transformers, and is illustrated with outlinedrawings and charts showing the method of repeating the test.

Air Pumps.—Wheeler Condenser & Engineering Company, Carteret, N. J. Bulletin No. 103. This is a 32-page treatise on the Wheeler-Edwards air pump, one of the features of which is that it handles both air and water. It is explained that the absence of foot and bucket valves in the machine results in an exceedingly small clearance, and accordingly a high vacuum is obtained without the aid of separate dry vacuum pumps, hot well pumps or air coolers. Various types of the pumps are illustrated, including some in use in a number of large steam turbine installations. Practical information for the handling of pumps of this character is also given.

Electric Cranes.—Shaw Electric Crane Company, Muskegon, Mich. Catalogue, 9 x 12 in.; 70 pages. A well arranged catalogue listing the company's full line of electric cranes. Attention is first called to the standard apparatus used in constructing its line, such as the usual construction of the bridge machinery, type of controllers, motors and other standard equipment. A séries of views of standard cranes adaptable for shop installation are shown, among which an interesting one is that of a 120-ton crane loaded on eight railroad cars ready for shipment. Housed cranes for outdoor service, yard cranes, charging cranes, &c., are shown, and there are numerous views of interiors of large factories where installations of heavy cranes have been made. A 120-ton crane in the shops of the Pittsburgh & Lake Erie Railroad at McKees Rocks, Pa., is shown transferring a complete locomotive, and there are also views of some special cranes devised for handling ashes, &c., and cranes in use in stone quarries, on wharfs and other outdoor locations. Capacities and speeds of standard cranes are given, and directions for inquiring for bids on machines are included.

A \$4 Basis for Machine Molded Stove Plate.-The resolution relating to the use of molding machines in stove foundries, as adopted at the recent conference of committees of the Stove Founders' National Defense Association and the Iron Molders' Union of North America is as follows, and it was adopted subject to ratification by a meeting of the S. F. N. D. A. in New York January 21: "Resolved, That we recommend a basic rate of \$4 net to be used in pricing work made upon a machine. The price of a given job on a machine shall be determined by the work of an expert furnished by the employer, who shall put up a day's work on the machine, and the number of good castings produced by him shall be used as a divisor of the basic wage and the result shall be the piece price. We designate as a machine primarily the simple squeezer, when match plates are used, considering this the lowest type of machine. Such machines are to be regularly operated by journeymen molders or apprentices, but in the event the shop management cannot secure such services out of its regular force, then relief shall be given to it in the manner provided for in paragraph 1 clause 22, Conference, 1905.'

New Interests in the Canadian Sault Enterprises.

TORONTO, January 16, 1909.—The purchase of a controlling interest in the Lake Superior Corporation by Robert Fleming and associates of England and Scotland, in co-operation with Dr. F. S. Pearson of New York and London, is regarded as the opening of a new and much brighter era in the history of what are generally classed together as the Clergue enterprises. Financial resources for the carrying out and carrying on of these undertakings have not heretofore been up to the proportions of the programme of developments. Capital was supplied for the construction of great power works and for the building and equipment of a number of large industries that were to turn the power to productive account. Some industries, such as the pulp and paper mills, were to make use of the water; others were to be operated by electricity generated from the water power; still others were to utilize electricity in their processes, as in the reduction of ores drawn from the company's mines. Besides the creation of manufacturing industries that were to be hitched to the power works, the company was to establish and work transportation systems, not merely electric railroad lines, but steam roads, and a fleet of steamships was to be built up. The company brought all these carriers into existence. Power plant, manufacturing industries and transportation systems were to be kept busy principally upon materials taken from the mines and timber eras within the territory covered by the railroad charters and the various concessions held under the company. Mainly for the reason that the flow of capital into the company's coffers stopped rather suddenly, the undertakings were in many cases not carried to completion. The Algoma Central Railway was pushed forward a certain distance along the line laid out for it, and then work upon it had to stop. The Manitoulin & North Shore Railway was not proceeded with. The planting of thousands of settlers along the projected route, as required by the terms of the land grant to the railroad company, remains another unfulfilled scheme. Great metallurgical works. proposed by Mr. Clergue, are still things of the future. The paper mill in which the output of the pulp mill was to be consumed is yet to be built. Great things were, however, accomplished, and to people unaware of the magnitude of Mr. Clergue's achievements language giving him no more than due praise for his energy might seem extravagant. Besides great energy and largeness and boldness of conception, he had unwavering confidence in the potential wealth of the section of Algoma District he proposed to exploit. Of the industries the company did in its reorganized form bring to completion the steel plant is the most important.

With the entrance of Mr. Fleming and his associates into control, the allied industries in the company's system will, it is expected, be invigorated by the desired capital. One result of the advent of the new interest is the release of the Ontario Government from its guarantee of \$1,000,000 of the bonds of the Algoma Central Railway Company. It is stated that the railroad is to be extended not merely to the point of junction as with the Canadian Pacific originally set, but to a point of junction with the Grand Trunk Pacific. Also, the Manitoulin & North Shore Railway is to be built. So, at all events, the report goes. With these railroads serving extensive tracts that are timbered and known to be rich in minerals, the sources of raw material in the company's sphere of influence will be sure of being worked. It is further stated that another work that will be carried out under the new auspices is the building of additional blast furnaces. This would be much to the advantage of the subsidiary steel company, whose rail mill has a capacity in excess of the output of pig iron at the works.

It is said that the interest of the British capitalists has been enlisted the more easily because of the developments in the silver fields of the Cobalt region. The proving of that region has led to the belief that other great ore lands will be found to the west, for the mineral belt in which the Cobalt veins occur has been traced across the greater part of Nipissing and Algoma.

C. A. C. J.

The Chicago Electrical Show.

The fourth annual electrical show of the Electrical Exposition Company opened January 16 at the Coliseum, Chicago. These shows are each year engaging more attention, and the present exposition surpasses all former displays in attractiveness, extent and variety of exhibits. All available space for exhibits is fully occupied, and the booths, which are uniform in design and construction and finished in white throughout, are brilliantly lighted and artistically decorated.

A novel scenic effect is produced by a spread of netting which obscures the framework of the high wide arched dome inside, from which the outside light is cut off. This entire space is studded with incandescent lamps, which are turned off momentarily one by one to resemble the twinkling of stars, so that the appearance of an open starlit sky is closely simulated. Another attractive feature is the copy of a battleship erected on the floor of the annex, with its deck equipped with a wireless telegraph outfit, and guns from the training ship Dorothea, which are manned by officers and men from the Illinois naval training reserve.

The progress that is being made in the production of electrical machinery and appliances is well illustrated by the number of new devices shown, and the opportunities thus afforded of practically demonstrating the convenience and economy of electricity as a labor saving agent in household and shop are being more generally embraced by manufacturers. This is attested by the increasing number of concerns represented by exhibits. Among the displays presented by the leading interests are those of the Allis-Chalmers Company, General Electric Company, Westinghouse Electric & Mfg. Company, Chicago Pneumatic Tool Company, Fort Wayne Electric Company, American Steel & Wire Company, Crane Company, Stromberg-Carlson Company, Northern Electric Mfg. Company, Cutler-Hammer Mfg. Company and Commonwealth Edison Company. The show will be continued for two weeks, closing January 30.

A Steel Works on the Stage.

Nothing seems to be too difficult for the theatrical genius to simulate in his attempts to inject realism into the drama. In Frederick Thompson's latest production, "Via Wireless," the scene of the second act is laid in the forge room of a large steel works, for which that of the Midvale Steel Company is said to have been the model. A monster steam hammer is one of the principal properties which appears and looks in action very like the real thing. Furnaces with light shining through the openings look exceedingly hot, and billets, though of paper with lights inside, have the effect of being white hot and very heavy as they are drawn from the furnaces on overhead trolleys and carried to the hammer or plunged in the tempering bath with an accompanying hiss and cloud of steam.

Thor pneumatic hammers add to the noise, which is cleverly produced in artificial ways to represent the din of a genuine shop. The actors representing the shop hands, in costume, make-up, words and action, are excellent impersonations. In the third act a cross section of a ship is shown tossing in a storm and a wireless telegraph outfit plays the name part. The plot of the play revolves about the overtempering of a huge experimental gun so that it will explode under test and throw a large government contract into the hands of the steel works holding the patents on another gun. The villain is of course apprehended and the hero, designer of the first gun and an officer in the army, is exonerated. Mr. Thompson has carefully gone into all of the details and setting of the play and made it one of the most realistic dramas ever produced.

The Collingwood Shipbuilding Company will greatly enlarge its plant at Collingwood, Ont., Canada, by building two new dry docks, one 705 ft. in length and the other 400 ft., with the necessary equipment. Ten acres of additional water front have been purchased for the purpose. With these enlargements completed, it is claimed that the company will have an equipment unsurpassed by any other shipbuilding yards in the Upper Lakes.

NEWS OF THE WORKS.

Iron and Steel.

The Churchward International Steel Company announces its incorporation under the laws of Delaware last week, to take over the American and European companies controlling the Churchward patents on processes for manufacturing vanadium steel. The office of the company is at 29 Broadway, New York, and Charles M. Dally is secretary and treasurer.

There is no truth in the report that the Wheeling Mold & Foundry Company, Wheeling, W. Va., contemplates the erection of a blast furnace to supply it with pig iron. The company states that no steps have been taken for such an enterprise and that it does not anticipate making any such improvement in the near future.

The Sivyer Steel Company has been incorporated in Milwaukee, Wis., with \$25,000 capital, by Fred L. Sivyer, vice-president of the Northwestern Malleable Iron Company; William C. Frye and Donald Fraser, all of Milwaukee. The company will erect a plant and put in two furnaces for the manufacture of crucible steel.

General Machinery.

A new building, 50×110 ft., of cement stone construction. Is being erected by James Matthews, Alva, Okla., who will occupy it about March 1 as an automobile garage and repair shop.

The organization of the Columbia Iron Works, Chattanooga, Tenn., has been completed by the election of the following officers: J. W. Conway, president: George M. Guild, vice-president: C. D. Richmond, secretary and treasurer, and H. M. Lofton, general manager. The new company, in which are interested some of the leading business men of Chattanooga, Charlotte and Detroit, has a capital stock of \$125,000 and has purchased the plant of the Herron Pump Company, consisting of a well equipped foundry and machine shop. Special tools and other equipment will be installed in the plant to manufacture woodworking, metal and hydraulic equipment. In addition a general foundry and machine shop business will be conducted. Operations will be started at an early date with a force of about 75 mechanics, which will be gradually increased.

W. H. Jessup has been appointed receiver for the Scranton Machine Works, Scranton, Pa.

W. J. Alford, 3521 Twenty-seventh street, Birmingham, Ala., desires to purchase the following second-hand equipment: One 10 to 12 ft. boring and turning mill, 30 to 40 ton locomotive, radial drill with 4 to 5 ft. arm, universal saw bench, sawmill equipment, small band resawing machine, a quantity of 30 to 60 lb. relaying rails, logging cars, &c.

The Vilter Mfg. Company, Milwaukee, Wis., has been awarder a contract for machinery capable of turning out 225 tons of ice a day, the refrigerating apparatus to be operated in a storage house having a capacity of 12,000 tons. The contract was placed by the Gate City Ice & Precooling Company, San Bernardino, Cal., and the Vilter plant will be in operation night and day for several months filling this and several other large orders from Mexico, South America and Canada. Equipment for the California company will include sufficient refrigeration to precool a train of 22 carloads of fruit.

W. S. Nicholls, New York, manufacturer of the Hercules portable crane holst, reports a growing demand for this all-steel portable crane. Among orders received are those of the Tennessee Coal, Iron & Railroad Company, Gisholt Machine Company, National Acme Mfg. Company, Inland Steel Company, Westinghouse Machine Company, Illinois Steel Company, Union Switch & Signal Company, American Steel & Wire Company, Northern Engineering Works, Edison Illuminating Company, Hendey Machine Company, Monarch Road Roller Company, New York Transportation Company, New York Taxicab Company, Dean Electric Company and H. H. Franklin Mfg. Company.

Power Plant Equipment.

The Grand Junction Electric Railway Company, whose offices are in the Mining Exchange Building, Colorado Springs, Colo., has under construction at Grand Junction 3% miles of line with necessary car barns and equipment. Plans of the company include the construction of a power plant at Debeque at an estimated cost of \$1,500,000, together with a line of road to Palisades, 13 miles distant, and branches tapping the Orchard Mesa District, for the irrigation of which \$900,000 of bonds have been sold. It is the intention of the company after completing the city railroad at Grand Junction to continue construction on the outlying system, which in all will include about 80 miles of track.

While not definitely decided as yet, the prospects are that the work of building dams in the Au Sable River by the Eastern Power & Electric Company, Au Sable, Mich., will be begun in the spring, the purpose being to generate power for furnishing electricity to towns, cities and traction lines in the surrounding territory. The work has not at present proceeded further than the making of preliminary surveys.

The Westinghouse Machine Company, Pittsburgh, Pa., notes an improvement in the demand for steam turbines, recent sales including Metropolitan Street Railway, Kansas City, Mo., 15.000 kw.; Narragansett Electric Light Company, Providence, R. I., 7000 kw.; Capitol Traction Company, Washington, D. C., 3000 kw.; B. F. Goodrich, Akron, Ohio, 1500 kw.; Tampa Electric Company, Tampa, Fla., 1500 kw.; Colorado Springs Electric Company, Colorado Springs, Colo., 1000 kw.; Pressed Steel Car Company, McKee's Rocks, Pa., 2000 kw., and a number of industrial and railroad companies for turbines of 1000 kw. and under. Steam engines have been sold to the Byron-Jackson Iron Works, San Francisco, Cal., three; Chicago, Minneapolis & St. Paul Railroad, one; T. A. Gillesple Company, New York, one; Black Hills Traction Company, Deadwood, S. D., one. Gas producer plants, Cia Azucarera del Panuco, Tampico, Mexico, 150 hp. suction producer with three-cylinder single-acting engine; New York Standard Watch Company, Jersey City, N. J., additional unit; Seaver & Co., Chelsea, Mass., 200 hp.; Cambridge Gas Company, Cambridge, Md.; Shelburne Falls Electric Company, Shelburne Falls, Mass., 175 hp.

The city council of Hugo, Okla., will receive bids until February 2 for the construction of a water works plant, including a brick power house, one 3,000,000-gal. concrete reservoir, two 150-hp. boliers, two 2,000,000-gal. pumps, two 800 cu. ft. air compressors, and a large quantity of cast iron pipe, hydrants, valves and special castings.

The United Utilities Company, Barboursville, W. Va., of which I. L. Douthat is manager, is planning to increase the capacity of its power plant by the addition of either a 25-kw. gas or steam engine generating set and a 5000-gal, pump. If a steam engine is selected, two 50-hp. boilers will be required. The company is not yet ready to make purchases, as it intends to investigate thoroughly several types of machines and prices, and would like to receive from manufacturers catalogues and price-lists.

The Charleroi Water Company, Pittsburgh, Pa., of which T. A. Mellon of the Mellon National Bank, Pittsburgh, is president, is considering the installation of a filtration plant and duplicate pumping machinery at its plant at Charleroi, Pa. Detailed plans for the work have not yet been completed, and the company does not know exactly what machinery will be required.

Foundries.

The National Gear Wheel Foundry, N. S., Pittsburgh, manufacturer of machine molded gearing and gas engines, proposes to erect shortly a reinforced concrete building, 23 x 120 ft., three stories, on South avenue, between its two present buildings. When completed the new addition will contain a pattern shop is on the first floor with the foundry, and when the former is removed to the new building the foundry facilities will be increased about 25 per cent.

George H. Thacher & Co., Albany, N. Y., who have leased their foundry building No. 2, comprising about one-half the capacity of the plant, to J. A. Kiipatrick, manager of the Canada Iron Corporation, will continue to operate the other part of their plant, manufacturing Coe improved combustion and draft system grates of every description and other gray iron castings.

W. N. Crouch, Norwood, N. Y., expects to place his foundry and machine shop at Fayetteville in operation in the spring, making iron castings.

Bridges and Buildings.

The Wm. B. Scaife & Sons Company, Pittsburgh, Pa., has received from Spang, Chalfant & Co. a contract for a large tonnage of structural steel work in connection with the extensive additions which are being made to the latter firm's tube plant at Etna, Pa.

The most extensive automobile storage and repair plant in Boston, Mass., located near Park Square, was destroyed by fire January 17, the total loss amounting to \$500,000. The station was occupied by six garages, several of which were used chiefly for making repairs. The principal occupants were the Park Square Auto Company, Boston Motor Company, Rambler Motor Company, Boston Auto Exchange, Concord Motor Car Company and the Marmon Company. It is stated that over 300 automobiles were burned.

The plant of the Xenia Board & Paper Company, Xenia, Ohio, was destroyed by fire January 18, the loss being about \$75,000.

Miscellaneous

The Providence Brass Foundry & Machine Company has taken over the business of the Providence Aluminum Company, and the business will be operated hereafter under the name of the Providence Brass & Aluminum Foundry. There will be no change in the management, the change of name being only to avoid confusion and facilitate the carrying on of its business.

The firm of Dunham & Peck, which for some time past has been located at 8 Summer street, Gloversville, N. Y., and engaged in the manufacture of dies for use in leather cutting, has incorporated, with a capital stock of \$50,000, under the name of the Dunham-Peck Mfg. Company. The incorporators are William J. Dunham and Eugene W. Peck of Gloversville, and Frank R. Robinson of Northville. The Summer street plant will be enlarged and remodeled in the near future and machinery and equipment added for the manufacture of farm machinery and garden implements of all descriptions.

The Crossett & Loyd Concrete Company, Binghamton, N. Y., has been organized to manufacture cement blocks and brick. Eleven acres of land have been purchased and several buildings will be erected. The company will require mixing machinery, conveying machinery, track equipment, drying cars and high pressure steam dry kilns. F. L. Crossett is president and E. W. Prout secretary and treasurer. Offices will be opened in the Kilmer Building about February 1.

The Sturtevant-Larabee Company, 10 Charles street, Bing-hamton, N. Y., manufacturer of wagons and carriages, has under consideration an extensive addition to its plant for the manufacture of a new line of goods.

The Little Falls Stone Company, Henry A. Shaper, president, Danube street, Little Falls, N. Y., will make extensive improvements and add considerable equipment to its stone crushing plant located near Little Falls. A contract has just been placed for a new crusher of the largest size and considerable other equipment will be added, including track equipment and cars, new steam shovel and conveying machinery.

The Niagara Cement Company, Buffalo, N. Y., is completing plans for largely increasing the size of its plant on Hamburg and Katherine streets and the Buffalo River, adjoining the Buffalo Union Furnace Company's works. About \$250,000 will be expended in the building and equipping of the extensions contemplated, which will be completed in July, giving employment to an additional force of about 200 men.

The Star Electric Company, 277 Front street, Binghamton, N. Y., manufacturer of fire alarm appliances, has closed a contract with the American District Telegraph Company, New York, whereby the latter company agrees to take the entire output of the factory, guaranteeing a sale of not less than \$1,000,000 worth of its product during the life of the contract, which covers five years. The receiving of this contract will necessitate a large addition to the present plant, for which plans are now being prepared.

The Valk Mfg. Company, Topeka, Kan., has been organized to manufacture a line of metal goods, including a valveless siphon rotary pump and a vegetable silcer. The company is incorporated with a capital stock of \$150,000, and is now engaged in installing machinery and equipment in a new building, 50×110 ft., located on Jefferson street, between Seventh and Eighth streets. Work is being pushed as rapidly as possible with the expectation of beginning operations early in the spring. The officers of the company are as follows: H. Goodwin, president; Jas. Valk, vice-president; J. H. Kaiser, secretary and treasurer.

The Light Mfg. & Foundry Company, Pottstown, Pa., has purchased the large brick factory building at Hanover and Fourth streets, which it will transfer to the Merkel-Light Motor Company, recently formed by the consolidation of the motor cycle departments of the Light Company and the Merkel Motor Company, Milwaukee, Wis. The equipment has been moved into the recently acquired building, which is now being operated, manufacturing motor cycles, blcycles and other similar machines.

The Crescent Emery-Corundum Wheel Company has been organized at Indianapolis, Ind., with \$8000 capital stock to manufacture abrasive materials. The incorporators are R. O. Rupert, Sr.; Chester G. Brown and J. T. Elllott, Jr.

Huntington, Ind., capitalists, including Peter, Edwin and Julius Martin, Theodore Torberg, Henry Keefer and John Alles, will build a stone crushing plant at Logansport, Ind., to cost \$125,000. Peter Martin is general manager of the Ohio & Western Lime Company, with 36 plants in the Central States. The new company is a separate enterprise.

The Industrial Mfg. Company has been organized at Elkhart, Ind., to manufacture gasoline engines, automobile parts, &c. Timothy J. Shananan, president was formerly manufacturer of the Polo gasoline engine at Polo, Ill. W. S. Long is vice-president and treasurer, and L. D. Hall, secretary.

Recent sales of fans, blowers and exhausters by the Green Fuel Economizer Company, Matteawan, N. Y., include Grand Rapids Refining Company, Grand Rapids, Mich.; St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo.; S. S. White Dental Mfg. Company, Princes Bay, S. I.; Atlantic Sewerage Company, Atlantic City, N. J.; Bigelow Carpet Company, Lowell, Mass.; American Mfg. Company, Brooklyn, N. Y.; Draper Company, Hopedale, Mass.; Bartiett, Kuhn & Co., Terre Haute, Ind.; People's Gas & Electric Company, Burlington, Iowa; United States Navy Yard, Mare Island. Callfornia; Abbot Packing Company, Carnegle, Pa.; I. E. Palmer Company, Middletown, Conn.; Stamford Rubber Supply Company, Stamford, Conn.; Elmer E. Irish, Boston, Mass.; First Avenue Brick & Tile Company, Evansville, Ind.; Esmond Mills, Enfield, R. I.; General Storage Battery Company, New York; Stauber Bros., Newark, N. J.; Preston Bros., Norwich, Conn.; Swift & Co., Charlotte, N. C.; Waterbury Castings Company, Waterbury, Conn.: Calumet & Hecla Mining Company, Calumet, Mich.; P. Nacey Company, Chicago, Ill.; Mitchell Motor Company, Racine, Wis.; Plcatinny Arsenal, Dover, N. J.; New Jersey Zinc Company, Franklin Furnace, N. Y.; Well & Elsendrath, Chicago, Ill.; Newburg Mfg. Company, Monroe, N. Y.; Monarch Portland Cement Company, Humboldt, Kan.; J. Griffin, Ltd., Edmonton, Alberta, Can.; Wallace Bros. Company, Lafayette, Ind.; Yawman & Erbe, Rochester, N. Y.; M. & W. Nixon Paper Company, Manayunk, Pa.; O. J. Poston, Martinsville, Ind.; Carnegie Steel Company, Waverley,

N. J.; Davis Mills, Fall River, Mass.; Merchants' Ice & Cold Storage Company, 16 fans, Cincinnati, Ohio; Vesta Accumulator Company, Chicago, Ill.; Warrentown Woolen Company, Torrington, Conn.; Lawton-Tailman Company, Flushing, L. I.; Youngstown Sheet & Tube Company, Youngstown, Ohio; Oil City Boiler Works, New York; Textile Finishing Company, New Durham, N. J.

The Pittsburgh Welding Company, 57 Twenty-second street, Pittsburgh, has received a contract from the Pressed Steel Car Company for an oxy-carbi welding outfit consisting of 10 blow-pipe capacity for use in its passenger car department, McKees Rocks, Pittsburgh. The Buckeye Steel Castings Company, Columbus, Ohlo, has also contracted for a two blow-pipe machine.

The Pittsburgh Valve, Foundry & Construction Company, Pittsburgh, reports business as improved. Some of its recent contracts include all of the steam and exhaust plping for the new 5000-kw. Westinghouse generator being installed in the Brunots Island power house of the Pittsburgh Railways Company; steam, gas and water pipage equipment, including that required for the gas producer plant, which runs up to 36 in., for a new cement factory at Eagle Ford, Texas, and a contract for all the valves required for the water lines being built by the city of Pittsburgh under a recent bond issue. These include three 50-in. valves for the rising main, 12 36-in. for the main supply and 12 20-in. for the branch lines.

The Buffalo Brazing Company, Buffalo, N. Y., recently organized, is the Eastern agent for the brazing compound made by the Welderine Mfg. Company, Topeka, Kan. The Buffalo Brazing Company has in the six months of its existence brazed between 40 and 50 tons of cast iron. Over 15,000 packages of Welderine were sold in Australia and South Africa the past year.

The El Dorado Light & Water Company, Eldorado, Ark., has been purchased by a new interest, which will proceed at once to install a system of water works. About 4½ miles of from 4 to 10 in. cast iron pipe will be required for mains; also 50 fire plugs. An oval bottom steel tank of 100,000 gal. capacity will be mounted on a steel tower 100 ft. high. The company desires to open correspondence with manufacturers prepared to furnish the tank erected.

The Perth Amboy Garage Company, Perth Amboy, N. J., is building a new plant to make general automobile supplies.

At the annual meeting of the Petroleum Iron Works, Sharon, Pa., the following officers and directors were elected: J. C. Cullinan, president; J. L. Considine, vice-president; A. W. Krouse, secretary and treasurer; C. J. McDowell, P. A. Lytle, and H. S. Scrafford. The company declared the regular and a special dividend.

The Williamsport Wire Rope Company, Williamsport, Pa., is erecting a new building alongside the present one, which will be equipped with modern machinery, electrically operated. The new building will increase the capacity about 50 per cent.

The large new works of the National Sanitary Mfg. Company, located at Salem, Ohlo, are equipped throughout with the Kirkwood system of fuel oil burning, as manufactured by Tate, Jones & Co., Inc., Pittsburgh, Pa. Due to the peculiar topographical conditions, it is necessary to lift the oil to quite an elevation in order to reach the furnaces where it is used; yet so perfect is the system that but one side of the ordinary pumping system is required. Due to the uniform heat secured, the low cost of maintenance and the little care required, it is found to be most admirably adapted for this particular purpose.

The Carborundum Company, Niagara Falls, N. Y., manufacturer of abrasives, will erect and equip a four-story brick and steel addition to its plant, 60 x 225 ft., to afford room for development of new lines of manufacture of abrasive products.

F. L. Rain has been appointed receiver for the Fairbury Iron Works & Windmill Company, Fairbury, Neb. The property is appraised at \$40,000 and the indebtedness is stated to be \$37,000. An effort is being made to reorganize the company and continue the business.

Announcement is made of the reorganization and increase in the capitalization of the Boynton Furnace Company, New York, from \$100,000 to \$400,000, all paid in. At the annual meeting just held all of the old officers were re-elected, as follows: Edwin E. Dickinson, president and treasurer; S. A. Swenson, vice-president; William Ritchie, secretary; Charles M. Benedict, assistant treasurer. No statement was given out other than that the increase of capitalization was made necessary by the great growth in the business of the company.

Thyssen & Co., the great German steel makers, are installing the Gayley dry blast at two furnaces and at the converters of the Deutscher Kaiser Works at Muelheim-am-Rhein. James Gayley is represented in Germany and France by Ehrhardt & Sehmer of Schleifmuehle; in other Continental countries by Axel Sahlin of Brussels and in Great Britain by Louis Sterne of London.

The Iron and Metal Trades

In nearly every direction the Iron and Steel markets are quiet, and no business of any magnitude has been placed. While some of the great leaders of the industry frankly avow their belief that no marked buying movement need be expected during the first half of the year, there are other interests, notably in the Central West, who are confident that business will be very much brisker in 60 to 90 days. Some of the smaller and medium sized plants are fairly busy, but it is claimed that they are getting more than their share by cutting prices. In amount these concessions are not serious, but they are irritating just the same.

Railroad buying is still below expectations, and until it develops into normal volume the heavy lines must be content to run along as they have done for some time past. Orders were placed during the past week for 2500 Steel cars by the New York Central, and specifications for the material for 800 cars for the Duluth & Iron Range have been received by the Chicago mill. The Great Northern has ordered 6500 tons of Steel Rails, and is asking for 18,000 tons more. It is reported that the requirements of the Baltimore & Ohio Railroad will be for 100,000 tons, and that the Erie will need 9000 tons.

The Structural markets have been quiet. None of the larger contracts which have been figured on lately have been awarded, but there has been quite a good run of small orders.

In Pittsburgh the disposition is observed on the part of the jobbers to stock up on Sheets, but on the whole the general distributing trade, in the lighter lines, has not yet taken hold vigorously. Stocks throughout the country are admittedly low, so that the day of a rush to stock up is still before us.

The Pig Iron markets have been quiet in every direction. The most persistent buyers are the makers of Cast Iron Pipe. One sale of 20,000 tons of Southern Iron was finally effected last Thursday. Apparently the Pipe makers have a good deal of business in sight. In spite of this, low prices are brought out at every letting. One of the large jobs coming up is 40,000 tons for San Francisco. For Kansas City S500 tons is required.

The Old Material markets are again easier, East and West.

Copper is declining under the weight of a record production, while consumption is not expanding as rapidly as expected.

Electrolytic Copper is being offered at 13%c., while the largest interest continues to "hold the umbrella" by declining to sell below 14½c., 30 days' delivery.

Spelter has declined to 5.10c., New York, and independent Lead interests are offering that metal at 4.20c.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

The direct, one week, one mone				
PIG IRON, Per Gross Ton:	Jan.20, 1909.	Jan.13, 1909.	Dec.16, 1908.	Jan.15, 1908.
Foundry No. 2, Standard, Philadelphia	217.95	217.95	217 95	218 95
Foundry No. 2, Southern, Cincin-	911.20	\$14.20	\$11.00 ·	010.20
nati	16.25	16.25	16.25	16.25
Foundry No. 2, Local, Chicago	17.35*			18.35*
Basic, delivered Eastern Pa	16.75	16.75	16.75	17.25
Basic, Valley Furnace	15.50	15.50	15.50	17.00
Bessemer, Pittsburgh	17.40	17.40	17.40	18.90
Gray Forge, Pittsburgh	15.40	15.40	15.15	16.90
Lake Superior Charcoal, Chicago	19.50	19.50	19.50	22.50
BILLETS, &c., Per Gross Ton :				
Steel Billets, Pittsburgh	25.00	25.00	25.00	28.00
Forging Billets, Pittsburgh	27.00	27.00	27.00	
Open Hearth Billets, Phila	26.20	26.20	26.20	30.00
Wire Rods. Pittsburgh	33.00	33.00	33.00	34.00
Steel Rails, Heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton				
Steel Rails, Melting, Chicago	14.50	14.50	15.50	12.00
Steel Rails, Melting, Phila	16.75	17.00	17.50	11.50
Iron Rails, Chicago	18.50	18.75	19.50	15.00
Iron Rails, Philadelphia	21,25	21.25	21.25	16.50
Car Wheels, Chicago	15.50	16.00	16.00	19.00
Car Wheels, Philadelphia	16.00	16.00	16.00	19.00
Heavy Steel Scrap, Pittsburgh	16.50	16.75	16.50	12.50
Heavy Steel Scrap, Chicago	14.00	14.00	15.00	10.75
Heavy Steel Scrap, Philadelphia	16.75	17.00	17.50	11.50
FINISHED IRON AND STEEL,				
Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia.	1.55	1.55	1.52	1.75
Common Iron Bars, Chicago	1.50	1.50	1.50	1.55
Common Iron Bars, Pittsburgh	1.50	1.50	1.50	1,40
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.76
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York		1.76	1.76	1.86
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.70
Beams, Tidewater, New York	1.76	1.76	1.76	1.86
Beams, Pittsburgh	1.60	1.60	1.60	1.70
Angles, Tidewater, New York	1.76	1.76	1.76	1.86
Angles, Pittsburgh	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	1.45	1.45	1.45	1.70
Skelp, Sheared Steel, Pittsburgh.	1.50	1.50	1.50	1.80
SHEETS, NAILS AND WIRE,	-	-	_	
Per Pound:	Cents.		Cents.	
Sheets, Black, No. 28, Pittsburgh.	2.50	2.50	2.50	2.50
Wire Nails, Pittsburgh	1.95	1.95	1.95	2.05
Cut Nails, Pittsburgh	1.75	1.75	1.75	2.00
Barb Wire, Galv., Pittsburgh	2.40	2.40	2.40	2.50
METALS, Per Pound :	Cents.		Cents.	
Lake Copper, New York	14.50	14.75	14.50	14.00
Electrolytic Copper, New York	13.75	14.25		13.871/2
Spelter, New York		5.20	5.20	4.70
Spelter, St. Louis	4.95	5.05	5.05	4.60
Lead, New York	4.20		4.25	3.75
Lead, St. Louis.	4.05	4.10	4.10	3.60
Tin, New York	28.09	28.15 8.00	29.10	27.75
Nickel, New York	8.00 45.00		8.12½ 45.00	
Tin Plate, 100 lb., New York	\$3.89	\$3.89	\$3.89	45.00 \$3.89
case, aco in, new luth	60.00	60.00	60.00	90.00

 These-quotations have been changed from prices at furnace to delivered prices at foundries. The 35c. is for switching charges.

Chicago.

FISHER BUILDING, January 20, 1909.—(By Telegraph.)

Business is undeniably quiet in every quarter of the market. No one seems able to assign a logical reason for the popular belief that a decisive turn toward betterment would be coincident with the new year; but the fact remains that such expectations were widely prevalent. That they have thus far failed of realization only heightens the disappointment felt, and intensifies impatience over the unresponsiveness of trade movements. Out of this experience, however, comes another impressive lesson of the futility of attempting to reestablish commercial and industrial activity by fiat. It is noted that the greater part of the orders for Steel Rails placed last week, amounting in all to about 12,000 tons, was for prompt delivery, and this would seem to signify that the limit of postponement of such purchases is being reached by some of the smaller roads at least. Since last report there has been added to the Rail inquiries from Western roads now pending that of the Great Northern for 18,000 tons, with 150,000 special Plate Joints, and there have been booked for the Joliet mill 30,000 kegs of Bolts and Spikes. Jobbers and manufacturers are not anticipating their wants to any extent, either in new orders or specifications. At the South Works of the Illinois Steel Company the standard Rail mill is still idle, and the uni-

versal Plate mill is shut down this week; 20 open hearth furnaces are on, as against 21 last week. Conditions in the Scrap market are peculiar; no difficulty is experienced in buying small lots of the various grades within the limits of present quotations, but it would be quite impossible to buy round tonnages of Old Iron Rails, Melting Steel and other leading lines of desirable Scrap at these prices. Neither railroads nor dealers are disposed to let go of select stock, believing that a reaction in the market later on will enable them to realize greater profits.

Pig Iron.—Trade is practically at a standstill. At no time within a year have transactions been lighter for a like period than they were last week. The leading business coming in is comprised chiefly of orders from small melters, who usually buy from month to month, and from the few larger concerns, who, their contracts having expired, are supplying their immediate wants in the same way. The entire demand now seems to be composed of filling in orders. Despite the extreme dullness, no signs of serious weakness in prices have developed. The Southern producers continue to hold at \$13, Birmingham, for No. 2 Foundry, for first half delivery, or \$17.35, Chicago, which price is being met by the local furnaces. What few inquiries there are mainly concern second quarter shipments, but of those reported none exceeds 500 tons. The future course of the market will depend upon the rate of foundry consumption during the next 60 days, and unless it increases hold up orders will become even more frequent, and in that event no buying of consequence for the second quarter can be expected. Meanwhile the furnaces are making no effort to press sales, thereby tending to preserve the stability of prices. The following quotations are for January, February and March delivery, f.o.b. Chicago:

Lake Superior Charcoal	\$19.50 to	\$20.00
Northern Coke Foundry, No. 1		
Northern Coke Foundry, No. 2	17.35 to	17.85
Northern Coke Foundry, No. 3	16.85 to	17.35
Northern Scotch, No. 1	18.35 to	18.85
Southern Coke, No. 1	17.85 to	18.35
Southern Coke, No. 2	17.35 to	17.85
Southern Coke, No. 3	16.85 to	17.35
Southern Coke, No. 4	16.35 to	16.85
	17.85 to	18.35
	17.35 to	17.85
Southern Gray Forge	15.85 to	16.35
Southern Mottled	15.60 to	16.10
Malleable Bessemer	17.00 to	17.50
Standard Bessemer	17.90 to	18.40
Jackson Co. and Kentucky Silvery, 6 %	19.90 to	20.40
	20.90 to	21.40
Jackson Co. and Gentucky Silvery, 10 %	22.90 to	23.40

(By Mail.)

Billets and Rods.—The demand for Forging Billets continues quiet, with only a few scattering orders and inquiries in the market. Machinery builders are specifying in a sparing way against existing contracts, so that altogether the entire volume of business moving is light. Prices, however, are reported to be evenly maintained at the ruling price of \$28.50, base, Chicago. The demand for Wire Rods is somewhat less active so far as new business is concerned, but specifications are fair. We quote the following prices: Bessemer, \$33; Basic, \$34; Chain, \$33, all at Pittsburgh.

Rails and Track Supplies.—Orders for Standard Rails aggregating 11,000 to 12,000 tons were received in the past week by the Illinois Steel Company, the most of which were wanted for immediate delivery. This tonnage represents the combined purchases of several interests, among which are included the Toledo, Peoria & Western Railroad, 1000 tons; the Detroit & Mackinac Railway, 1000 tons, and a Frog and Switch manufacturer, 2500 tons. Part of these requirements are for Bessemer and part Open Hearth. The same interest booked new orders for 30,000 kegs of Spikes and Bolts. In addition to the 8000 tons of Rails mentioned in last report as purchased by the Great Northern Railroad, there is an inquiry out from this system for 18,000 tons. It is understood that the first lot was for early shipment, while the latter contemplates deliveries beginning after navigation has opened in the spring, making lake and rail rates available. Along with this inquiry, the same road is figuring on 150,000 special Rail Joints. There is not much doing in Light Rails, and unless an active movement sets in during the latter half of the month, the tonnage booked for January will be light as compared with that of December. There is no appreciable change in Light Rail prices, which are unsettled to the extent of shading from \$1 to \$2 a ton below the regular schedule. We quote as follows: Angle Bars, accompanying Rail orders, 1909 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.15c. to 2.25c., base, Square Nuts, and 2.30c. to 2.40c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., \$26; 20-lb., \$27; 16-lb., \$28; 12-lb., \$29. Standard Sections, Bessemer, \$28; Open Hearth, \$30, on lots of 500 tons and over; on smaller lots \$2 a ton extra. In a preliminary try-out of the new Rail mill at the Gary Works, the first finished Rail was rolled on January 17. An erroneous report gained currency that this had been accomplishe

and a perfect Rail was produced. Ingots for these tests were furnished from the Illinois Steel Company's South Works, the Open Hearth furnaces of the Gary plant not having yet been fired. The smooth and even working of the motors and mill machinery was gratifying both to the company and its engineers, by whom the equipment is regarded as mechanically fit to begin regular rolling at any time.

Structural Material.-Comparatively little work has been secured by fabricators so far this year. Neither the railroads nor other interests seem to be in any hurry to conclude negotiations on pending tonnage. The result that only the smaller jobs are being placed, and they are not numerous enough to fill the gap. Among the contracts numerous enough to fill the gap. Among the contracts which went to fabricators last week was 280 tons for the Shoaf Office Building, Fort Wayne, Ind., which will be furnished by the American Bridge Company. Three small post offices, each less than 100 tons, went to the Christopher & Simpson Structural Iron Works, St. Louis. Figures are Figures are in on 300 tons for a bank building at Fort Smith, Ark, but no award has as yet been made. Material for the Crane Company's new building structures in Chicago and San Francisco is still pending, as is the 7000 tons required by the Northern Pacific Railroad. The Alling Construction Company was the low bidder on 1000 tons of material for the Cook County Infirmary buildings, but the award of the contract is held up, pending the outcome of an injunction suit brought by a competitive bidder. Preliminary Building Company at the northeast corner of State and Adam streets have been drawn, and it is believed that this project will soon be far enough advanced to engage the attention of fabricators. Two or three other large structures for the loop district in this city are being talked of, though no definite announcement of plans has yet been made. Prices from store are 1.95c, to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c.

Plates.—Orders have been placed with the Illinois Steel Company for Plates required for the construction of 800 Steel cars, to be built for the Duluth & Iron Range Railroad. New orders and specifications from other sources are coming in slowly, and in small lots. The Sheared Plate mill at the South Works is going, but the Universal mill is not operating this week. Prices remain fairly firm at regular quotations, except for concessions of from \$1 to \$2 a ton, which are generally confined to specifications for narrow sizes. We quote mill shipments as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier, up to 72 in. wide, 2.c to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets,—The demand for Sheets has slowed up considerably, the market not having as yet regained the momentum lost during the holidays. Buying is restricted to small lots required for immediate use, and stock orders from jobbers are disappointingly light. Manufacturers are likewise not anticipating their wants to the extent that was expected. Regular prices are being fairly well maintained by the leading mills, but are being shaded to the extent of from \$1 to \$2 a ton by a few makers. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 and 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.15c.; No. 12, 2.20c.; No. 14, 2.25c.; No. 16, 2.35c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—The combined tonnage of new orders and contracts against specifications is not sufficient to keep the Iron Bar mills in continuous operation. Orders are mainly for material wanted for immediate consumption, and consumers are accordingly urgent in their demands for prompt delivery. Some fair sized specifications for hard Angles from bed manufacturers have been received, and trade in this line is reasonably active. Consumers of Steel Bars continue to specify against contracts in a moderate way. Five of the six Bar mills of the Illinois Steel Company's Bay View plant are in

operation. About 500 tons of concrete reinforcing Bars is included in the plans for the new Cook County Infirmary, the contract for which has not yet been placed. Quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras; Iron Bars, 1.50c.; Hoops, No. 13 and lighter, 1.98c., full extra Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extras, Steel Bar card, Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron, 2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras,

Merchant Pipe.—Buying is restricted to the sorting up orders of jobbers, whose stocks are just now moving slowly. Seasonable conditions are likely to operate against any immediate improvement, and until buying for spring trade opens up there is little to be expected in the way of permanent improvement. Effective January 18, the rate of freight on Wrought Tubural goods is advanced 1c. per 100 lb. to Missouri River common points. The following mill discounts are quoted: Black Pipe, ¾ to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized. ¾ to 6 in., 63.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, ¾ to 6 in. About three points above these prices is asked for Iron Pipe.

Boiler Tubes.—Orders from several Western roads for Locomotive Tubes have been received in the past few days, and the placing of two or three contracts for the year's requirements is reported. The current demand for Merchant Tubes is of small volume, and there is practically no buying for future delivery. Mill quotations for future delivery, on the base sizes, are as follows: 2½ to 4¼ in., inclusive, Steel Tubes, 63.2; Iron, 50.2; Seamless, 50.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

1 1	0	11/	2	in		 0 0				0	0					teel.	Iron.	Seamless.
1%	ÉC	2	1/4	11	n	 										.50	35	35
2%	in					 										521/6	35	35
23%	to	5	iı	1.												.60	471/2	471/2
6 1	9%	0.25	6.	10	1 92	 0.1	je.									50	25	

Merchant Steel.—There is no stirring movement for any of the lines comprised under this head. Specifications from all sources are light, and new orders are merely of an incidental character. We quote as follows: Planished or Smooth Finished Tire Steel, 1.78c.; Iron Finish, up to 1½ x ½ in., 1.73c., base, Steel card; Iron Finish, 1½ x ½ in. and larger, 1.58c., base, Tire card; Channels for solid Rubber Tires, ¾ to 1 in., 2.08c., and 1½ in. and larger, 1.98c.; Smooth Finished Machinery Steel, 2.08c.; Flat Sleigh Shoe, 1.63c.; Concave and Convex Sleigh Shoe, 1.83c.; Cutter Shoe, 2.05c.; Toe Calk Steel, 2.13c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Cold Rolled Shafting in car lots and over, 57 per cent. off; in less than car lots, 52 per cent. off, with carload freight allowed within base territory.

Cast Iron Pipe,—Municipal requirements scheduled for letting the present week include 200 tons for Mound Ridge, Kan.; 350 tons for Augusta, Kan., and 300 tons for Muscatine, Iowa. Bids were opened last week on a considerable quantity of Pipe required for the Kansas City, Mo., water works system, but the placing of the order has been deferred until January 21. In spite of the present slow development of business, Pipe makers are of the opinion that the demand will soon become more general. The railroads, which for several months have not figured to any extent in the markets, are expected to contribute a liberal amount of tonnage the coming season. Prices are firmer, and quotations are advanced \$1 a ton. We quote nominally per ton, Chicago, as follows: Water Pipe, 4 in., \$28; 6 to 12 in., \$27; 16 in. and up, \$25, with \$1 extra for Gas Pipe.

Metals.—Futures in Copper are being firmly held, though spot metal is a little softer. Outside of the small lots that are being taken for immediate consumption, there is little doing. Casting Copper is off about one-fourth of a cent, while Lake holds reasonably firm at current quotations. Pig Tin and Lead are both weaker. Spelter is nominally unchanged, but the indications are that producers are taking business below the recognized market level; 4.95c, is reported to have been done in this way. The demand for Old Metals is extremely sluggish. Quotations are as follows: Casting Copper, 14c. to 14½c.; Lake, 14½c. to 14¾c., in car lots, for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 30c.; small lots, 34½c.; Lead, Desilverized, 4.35c. to 4.45c., for 50-ton lots; Corroding, 4.60c. to 4.70c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 5.10c. to 5.25c.; Cookson's Antimony, 10½c., and other grade, 9¾c. to 10¼c.; Sheet Zinc is \$7, fo.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, Crucible Shapes, 14c. to 14¼c.; Copper Bottoms, 12¼c.; Copper Clips, 12¼c.; Red Brass, 12½c.; Yellow Brass, 10c.; Light Brass, 7½c.; Lead Pipe, 4.35c.; Zinc., 3¾c.; Pewter, No. 1, 21c.; Tin Foil, 23c.; Block Tin Pipe, 26c.

Old Material.—Transactions of the past week were few, and embraced no important tonnage. Among the consuming

interests the principal purchasers were the rolling mills, which are picking up small lots on advantageous offers, and these it may be noted are growing more plentiful. One leading mill interest is reported to have accumulated 25,000 tons of Heavy Melting Steel in the past three or four weeks on purchases for future delivery. Evidently, the dealers who have undertaken these short sale contracts are not being pressed for delivery, since there is nothing in the course of prices on this grade indicating urgent demand. The 5000 tons of Iron Rails included in the list recently offered by the Great Northern Railroad was withdrawn, the price offered being unsatisfactory. According to the dealers, these Rails represent in part the accumulation of nearly two years, during which time the various tenders made have fallen short of the value set upon them by the road. It is also stated that none of the Steel Rails included in this list was sold, and that the principal part of the remaining tonnage was disposed of in St. Paul and Minneapolis. The market still shows weakness, with no firm support in sight either from dealers or consumers. The following prices are per gross ton, f.o.b. Chicago:

Old Iron Raiis\$		
Old Steel Rails, rerolling	15.75 to	16.25
Old Steel Rails, less than 3 ft	14.50 to	. 15.00
Relaying Rails, standard sections, sub-		
ject to inspection	22,50 to	23.50
Old Car Wheels	15.50 to	16.00
Heavy Melting Steel Scrap		
Frogs, Switches and Guards, cut apart.		14.50
Mixed Steel		12.50

The following quotations are per net ton:

~	Total danger of the tree total		
	Iron Fish Plates		
	Iron Car Axles		
	Steel Car Axies	18.00 to	
	No. 1 Railroad Wrought	13.75 to	
	No. 2 Railroad Wrought	12.75 to	
	Springs, Knuckles and Couplers	13.75 to	
	Locomotive Tires, smooth	14.50 to	
	No. 1 Dealers' Forge	11.00 to	
	Mixed Busheling	8.50 to	
	Iron Axle Turnings	8.50 to	
	Soft Steel Axle Turnings	8.50 to	
	Machine Shop Turnings	8.50 to	
	Cast Borings	7.00 to	
	Mixed Borings, &c	7.00 to	
	No. 1 Mill	8.50 to	
	No. 2 Mill	7.50 to	
	No. 1 Boilers, cut to Sheets and Rings.	10.00 to	10.50
	No. 1 Cast Scrap	12.75 to	13.25
	Stove Plate and Light Cast Scrap	12.00 to	12.50
	Railroad Malleable	12.75 to	13.25
	Agricultural Malleable	11.25 to	11.75
	Pipes and Flues	10.50 to	

St. Louis.

St. Louis, Mo., January 18, 1909.

Severe winter weather has caused a suspension of most of the outdoor building work in this vicinity. The outlook for building in this section is, however, far more favorable than at the corresponding time last year. The St. Louis Contracting Company will erect a factory on Clayton avenue to cost \$60,000. The lot is 242 x 370 ft., and there are switch tracks connecting with the Wabash Railroad. The company will install a stone planer, the only one in the city. The city of St. Louis contemplates expending \$2,000,000 for sewer improvements in the near future. Plans and specifications are now being considered.

Coke.—The demand for Coke, though moderate, is continuous, and a fair number of inquiries in hand daily with the various sales agencies promises a quite steady run of business; but it is wholly for small lots, there being no inquiries pending for round lots. Owing to the lack of large contracts prices have ruled barely steady. The range in price, however, should be understood to represent some difference in quality and also in brand. We quote as follows: 72-hr. Foundry Connellsville, \$2.15 at oven for prompt shipment. Sales are reported at \$2.35 for standard Connellsville for shipment over 1909, though some agents are holding at \$2.50, as it is claimed recent snow storms are interfering with making and shipping, and the tendency of prices is strong at the close, especially for spot Coke.

Pig Iron.—Though with some of the sales agencies the demand for Pig Iron has hardly come up to expectations, other houses report a fairly good business, mostly for small lots, none reporting sales of over 500 tons. We hear of a sale to one of the large local stove manufacturers of 400 tons of 8 per cent. Silicon from Ashland, Ky., at about \$18, 8t. Louis (present freight rate \$2.35). Inquiry is pending for 2800 tons of various kinds of Iron, divided between Silvery and Nos. 2 and 3 Southern Foundry, for shipment over the second quarter; also for 600 tons Southern Foundry, shipment February to June. Prices remain unchanged and fairly firm. No quotations are on the market, so far as reported, for second half. We quote for No. 2 Southern Foundry, Birmingham, first quarter, \$13. Ohio Iron is offered at \$15.50 to \$16 for No. 2 at Ironton; Northern Silvery, 8 per cent. Silicon, \$18.50 to \$19 at Jackson County furnaces.

Finished Iron and Steel.—In Bars and Bar products the demand from manufacturers is fair, but with jobbers there is not much activity; the railroads also are not buying so freely as last month. Standard Rails are quiet, but Light Rails continue in request. Track Material is being ordered out steadily on contracts made last fall.

Old Material.—While there is some inquiry for a few lines of Scrap Iron and Steel, the movement is light and the feeling is not so firm. There is, however, no quotable change in prices, as a more active market is confidently looked for in the near future. There are no offerings by the railroads reported this week. Relaying Rails continue in demand at outside figures. We quote per gross ton as follows, f.o.b. St. Louis:

Old Iron Rails\$17.00 to \$1	7.50
Old Steel Rails, rerolling 15.25 to 1	5.50
Old Steel Rails, less than 3 ft 14.75 to 13	5.25
Relaying Rails, standard sections, sub-	
ject to inspection 24.00 to 2	4.50
Old Car Wheels 16.50 to 1	7.00
Heavy Melting Steel Scrap 14.75 to 1	5.25
Frogs, Switches and Guards, cut apart. 14.75 to 1	5.25
Mixed Steel 10.25 to 10	0.75

The following quotations are per net ton:

Iron Fish Plates	0	\$16.50
Iron Car Axles 20.00 t	0	20.50
No. 1 Railroad Wrought 14.50 t	0	15.00
No. 2 Railroad Wrought 13.50 t	0.	14.00
Railway Springs 13.00 t	0	13.50
Locomotive Tires, smooth 13.50 t	0	
No. 1 Dealers' Forge 11.50 t		12.00
Mixed Borings 7.00 t	0	7.50
No. 1 Boilers, cut to Sheets and Rings. 10.00 t	0	10.50
No. 1 Cast Scrap 13.50 t		14.00
Stove Plate and Light Cast Scrap 10.50 t	0.1	11.00
Railroad Malleable 12.00 t		12.50
Agricultural Malleable 10.50 t	0	11.00
Pipes and Flues 10.50 t		11.00
Railroad Sheet Scrap 11.50 t	0	12.00
Railroad Grate Bars 11.50 t	to	12.00
Machine Shop Turnings 9.50 t	0	10.00

Lead, Spelter, Etc.—The market for Lead is ruling quiet. We quote 4.10c. to 4.12½c., St. Louis. Lead Ore, \$26 per 1000 lb., base. Spelter is dull. The market range is 5.05c. to 5.12½c, for galvanizing brands and 5.50c. for Brass metal. Zinc Ore strong, at \$42 to \$44 per ton, base. The output of Lead and Spelter is hampered in the Joplin District by cold weather and snow, and the output in consequence is still being reduced from that cause and likely will lead to an advance in prices. The demand for metals has improved this week. Tin is sharply lower; Antimony unchanged; Copper steady.

The Scullin-Gallagher Iron & Steel Company reports an order from the Nashville, Chattanooga & St. Louis Railroad for 200 cast steel truck bolsters.

for 200 cast steel truck bolsters.

The St. Louis Blast Furnace Company recently installed a Tod blowing engine, and intends soon to put in a Macbeth. When the additional blowing power is installed a considerable increase of output will be secured.

Philadelphia.

PHILADELPHIA, Pa., January 19, 1909.

A waiting tendency seems to have developed in nearly all lines. The only transaction of importance in Pig Iron was the closing of a round lot of low grade Southern Iron for one of the local Pipe foundries. In some lines of rolled products business about holds its own, but in others the demand is not so urgent. The Old Material market is softer, while there have been no heavy declines business has been done at about 50c. a ton under prices quoted for the active grades last week.

Pig Iron.—The only transaction of interest during the week was the closing of a contract with one of the Cast Iron Pipe foundries for 20,000 tons of low grade Southern Iron, delivery extending over about six months at the market price. This transaction had been hanging fire for several weeks. The bulk of sales was in the Foundry Grades, and the quantities usually taken have been comparatively small. A fair business has been done with buyers who customarily come into the market for immediate and near future requirements, but there seems to be an absence of interest in forward delivery. A sale of 300 tons of No. 1 X Foundry is reported at \$17.75, delivered, while No. 2 X commands from \$17.25 to \$17.50 for first quarter, and in some few instances willingness has been expressed to accept these figures for shipments extending into the second quarter. This is usually coming from makers who are about to increase their output, but those who are already pretty well sold up still show little interest in forward business. In addition to the sale of the round lot of Pipe Iron mentioned above, some small lots of Southern are understood to have been purchased by other Pipe making interests. This, it is said, was resale Iron, taken for prompt delivery at prices a shade under those which makers will accept. Virginia Foundry grades have been comparatively dull, with sales of carload and slightly larger lots reported at full market prices, but the aggregate has been small. Some moderate business in Forge Iron has been done. One sale of 500 tons was made at \$16, delivered, but other sellers hold firmly at \$16.25 to \$16.50. Steel makers still hold off. Several are in the market and would purchase round lots of Basic Iron, but have been unable to come

to an understanding with producers regarding prices, the differences ranging from 25c. to 50c. a ton for second quarter deliveries. Little new business has developed in Low Phosphorus Iron, prices on which are being well maintained. The situation as far as prompt Iron in all grades is concerned continues strong, but the same strength is not shown regarding Iron for forward delivery. Business since the first of the year has not developed at the rate that was anticipated, and the higher range of prices which was expected has not materialized. Until the general situation improves it is believed that buying will be along conservative lines. For delivery in buyers' yards, eastern Pennsylvania and nearby territory, during the first quarter prices range as follows:

Eastern	Penn	syl	va	n	ia	, 1	N	0.	2	1	Z	F	°o	u	n	d	r	7	90	17.25	to	\$17.50
Eastern	Penn	SV	VE	n	ia		3	io		2		P	12	i	n					16.75	to	17.00
Virginia																						
Virginia	No.	2	P	a	in															17.00	to	17.25
Gray F	orge .																			16,00	to	16.50
Basic .																						
Low Ph	ospho	rus	š																	21.50	to	21.75

Ferromanganese.—Several sales of carload lots for spot shipment, at \$43.75 to \$44.50, Baltimore, are reported. For forward delivery \$45 to \$45.50 is being named, but there is little business of this character before the trade.

Billets.—The demand continues along narrow lines, and, if anything, is a shade quieter. The bulk of the business continues of a prompt nature. Ordinary Rolling Steel for delivery in this territory is quoted at \$26.20, with Forging Steel \$28.20, subject to the usual extras for high carbons and special sizes.

Plates.—A fairly even demand continues. For some classes a betterment is to be noted, particularly in boat Plates, the Delaware River yards having taken additional orders for Steel boats. Locomotive, Structural and Boiler Plates are also in fair demand, although no heavy individual quantities have been taken. Prices for delivery in this territory range as follows:

Parts Carloads. carloads. Cents. Cents.
Tank, Bridge and Boat Steel
Flange or Boiler Steel
Commercial Firebox
Marine
Locomotive Firebox Steel2.25 2.30
The above are base prices for 1/4-in, and heavier. The following
extras apply: Extra per
100 lb.
3-16-in, thick\$0.10
Nos. 7 and 8, B, W, G
No. 9, B. W. G
Plates over 100 to 110 in
Plates over 110 to 115 in
Plates over 115 to 120 in
Plates over 120 to 125 in
Plates over 125 to 130 in
Plates over 130 in

Structural Material.—Some moderate orders for miscellaneous building purposes have come out and more are pending. Several large propositions are developing which will come before the trade before very long. Bridge work is slack. Prices are unchanged, ranging from 1.75c. to 1.90c., delivered, according to specification.

Sheets.—A somewhat less active demand is noted. Makers are running off orders accumulated during the recent suspension of work, but new business comes out less freely, continuing almost entirely of a spot nature. Quotations for mill shipments, a tenth extra being added for small lots, range as follows: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Old Material.—The market is easier. Heavy Melting Steel has been sold in lots of several thousand tons each at prices ranging from \$16.75 to \$17, delivered, although some of the recent railroad offerings are understood to have brought higher figures. Several of the leading mills in this territory are now practically out of the market, having taken all they want for immediate future needs. Two or three plants are not so well fixed and are said to be still in the market for good quantities. The softening of Steel Scrap prices has brought down quotations on Borings and Turnings, which are off about 50 cents a ton. Choice Railroad Wrought is also weaker, showing a decline of 50 cents a ton. Quotations for delivery in buyers' yards, eastern Pennsylvania and nearby territory, are nominally as follows:

No. 1 Steel Scrap and Crops	\$16.75 to \$17.50
Low Phosphorus	20.00 to 21.00
Old Steel Axles	22.50 to 23.00
Old Iron Axles	24.25 to 24.75
Old Iron Rails	21.25 to 21.75
Old Car Wheels	16.00 to 17.00
Choice No. 1 R. R. Wrought	19.50 to 20.00
Machinery Cast	16.00 to 16.50
Railroad Malleable	15.75 to 16.25
Wrought Iron Pipe	15.25 to 15.75
No. 1 Forge Fire Scrap	13.75 to 14.25
No. 2 Light Iron	10.00 to 10.50
Wrought Turnings	13.50 to 14.00
Stove Plate	13.75 to 14.25
Cast Borings	12.50 to 13.00
Grate Bars	14.50 to 15.00

Bars.—Business is reported to be closing more easily, although the individual purchases are still somewhat small and mainly for early delivery. Prices continue very firm, ranging

from 1.55c. to 1.60c. for Refined Iron Bars, delivered, with Steel Bars at 1.55c., delivered.

Coke.—There is a fair demand for spot Foundry Coke, but Furnace Coke has been dull. A 1000-ton lot of the former was sold last week at \$2.25, at oven, while spot Furnace Coke has been offered down to \$1.60. For delivery in this territory prices range about as follows:

Connellsville Furnace Co	oke	 	\$3.85 to \$4.15
Foundry Coke		 	4.25 to 4.60
Mountain Furnace Coke	e	 	3.45 to 3.75
Foundry Coke		 ****	3.50 to 4.20

Cleveland.

CLEVELAND, OHIO, January 19, 1909.

Iron Ore.-Lake freights for 1909 will, in all probability, be the same as last season, when the rates were 65c. a ton from the ports at the head of Lake Superior to Lake Erie ports; 60c. from Marquette, and 50c. from Escanaba. Some chartering has been done at last season's rates, so that there is little chance of there being any advance. It not expected that much chartering will be done until Ore is sold. There are no indications that a buying move-ment will start in for some time. It is believed that the tariff revision which may result in the placing of Ore on the free list, or at least in the reduction of the present duty, will have the effect of delaying a buying movement, particularly among the Eastern furnaces. While there has been some talk of a slight advance in the price of Ore, it seems to be the general opinion that last year's prices will be re-established. On account of the action of the Marine Engineers' Beneficial Association in preferring charges against engineers who signed individual open shop contracts with their employers last year, and the fining and suspension of engineers for violating the rules of the union, about a dozen of the engineers in the employ of the Pittsburgh Steam ship Company have resigned as members of the Engineers Union, and have started a movement to form a new organization of marine engineers on the lakes. The plan is to first take in the engineers of the Pittsburgh Steamship Company and Pickands, Mather & Co., and later to extend the organization to other fleets that are members of the Lake Carriers' Association. Ore prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; Old Range Non-Bessemer, \$3.70; Mesaba Non-Bessemer, \$3.50.

Pig Iron.—The only sales reported were a few small lots. Inquiries are scarce, the largest being for 500 tons of Foundry Iron. Encouraging reports are coming from some of the foundrymen, who say that their melt has improved sufficiently to warrant them to buy a little more Iron for the first half. Foundrymen have bought very conservatively for the first half, and as a result there are few requests to withhold shipments. While local furnaces are well sold up for the first quarter and are maintaining prices, the market does not appear to be quite as firm as it was in some localities a few weeks ago, but there has been no inquiry recently of sufficient size to test the market thoroughly. Local furnaces continue to hold firmly at \$16, at furnace, for No. 2 Foundry for outside shipment, and \$16.50 to \$16.75, delivered, Cleveland. Deliveries of Foundry Iron on last quarter of 1908 contracts are well cleaned up, there being but little left to be taken by some of the melters after the first of the year. Malleable Bessemer is in limited demand, and not much improvement is expected until the railroads get to buying. The stack of the Struthers Furnace Company, which has been out for relining, was blown in on Basic Iron January 12. For the first quarter and first half we quote, delivered, Cleveland, as follows:

Bessemer												0		8	17.40
Northern	Foundry,	No.	1.			0 1						. 8	16.90	to	17.40
Northern															
Northern	Foundry,	No.	3.										16.00	to	16.50
Gray For															
Southern	Foundry,	No.	2.				0		0 0						17.35
Jackson (County Sil	very	7. 3	8	83	e	r	0	en	t	8	ili	con		20.05

Coke.—Some demand is reported for spot Furnace Coke in small lots. Consumers are taking Foundry Coke freely on contract, but little new business is being placed. Spot Furnace Coke is still weak, the Standard Connellsville grade being quoted at \$1.50 to \$1.60, at oven. The same Coke is held at \$1.75 to \$1.80, at oven, for the first quarter, and \$1.90 to \$2 for the first half. On contract Connellsville 72-hr. Foundry Coke is held at \$2.25 to \$2.40.

Finished Iron and Steel.—Mills are getting a fair volume of specifications on contracts, but improvement in orders that was hoped for soon after the beginning of the year has not yet materialized. The tonnage being taken on contract is about the same as in December but less than in November. Inquiries are scarce. The leading interest reports new contracts during the week for about 1000 tons of Bars, Plates and Structural Material, and for 900 tons of Plates and Shapes for a new boat, for which the American Shipbuilding Company has just secured a contract. This will be a 260-ft. boat, to be built for Detroit interests at the Detroit yard of the company for the pulp wood trade. Some other small

contracts for Iron and Steel Bars have been closed. Until the railroads become more active in placing orders for material little improvement is expected in rolled products. Specifications are largely for Steel Bars and Structural Material. Good specifications are coming from the implement makers, whose plants are quite busy. Reports from some of them are to the effect that their output this season will be considerably larger than last year. The plants of the carriage makers and manufacturers of springs are also fairly busy. The National Iron & Wire Company, Cleveland, has secured the contract for the Structural Steel for the Clow Pipe Foundry at Coshocton, Ohio, requiring 500 tons, and T. H. Brooks & Co., Cleveland, secured the contract for the Steel for a new school building in Sandusky, Ohio, that will take 300 tons. It is understood that the contract for 200 tons for the Wick Building in Youngstown will be closed in a few days. The Interstate Engineering Company, Bedford, Ohio, has secured the contracts for the Structural Material for new factory buildings to be erected by the Jeffrey Mfg. Company, Columbus, and the Triumph Electrical Mfg. Company, Cincinnati, aggregating 2500 tons. The demand for Plates is light, and a number of mills are still shading prices from \$1 to \$2 a ton. Jobbers report a slight improvement in orders, but their business is still slow. We quote: Iron Bars, 1.50c., Cleveland, for car lots; Steel Bars, 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., base, Cleveland, and Plates, ¼-in. and heavier, 1.70c., base, Cleveland, and Plates, ill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 28, 3.65c. Jobbers quote Iron Bars out of stock at 1.55c. to 1.60c., and Steel Bars at 1.60c. to 1.70c. Beams and Channels from warehouse are 2c., and Plates, ¼-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 2¾ to 5 in., are 65 per cent. discount, and on Black Merchant Iron Pipe, bas

Old Material.—The market is weaker, although price quotations have remained about stationary since the decline of 50c. a ton, noted last week, with the exception of Heavy Melting Steel and Turnings. The former is 25c. a ton lower and the latter has declined 50c. The week's sales were limited to a few car lots, and there is nothing to indicate an early improvement in the demand. Of the dealers who have large stocks on hand, some feel that they must dispose of at least of a portion of their holdings soon, but others seem content to wait until the market becomes firmer, believing that there will be an improvement in the demand and a strengthening in prices within two or three weeks. Among the railroad offerings this week is 2000 tons to be sold by the Lake Shore. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails\$1	6.00 to \$16.50
Old Iron Rails 1	8.50 to 19.00
Steel Car Axles	
Oid Car Wheels 1	
Heavy Melting Steel 1	
Relaying Rails, 50 lb. and over 2	
Agricultural Malleable 1	
Railroad Malleable 1	
Light Bundled Sheet Scrap	9.50 to 10.00

The following prices are per net ton, f.o.b. Cleveland:

Iron Car Axles\$19.50 to	\$20.00
Cast Borings 8.00 to	8.50
Iron and Steel Turnings and Drillings. 9.00 to	
No. 1 Busheling	
No. 1 Rallroad Wrought 15.00 to	15.50
No. 1 Cast	14.00
	12.00
Bundled Tin Scrap	9.00

Cincinnati.

CINCINNATI, OHIO, January 20, 1909.—(By Telegraph.)

The middle of the month has come, and it finds a situation in the Iron and Steel trade but very little different from its beginning. While there are evidences everywhere of rather confirmed optimism, and some important improvements that will redound largely to the benefit of the trade are going ahead, new business of any kind is undoubtedly scarce. Manufacturers in the tool line find an improvement in the tone of dealers' letters, and for the first time for many months are convinced that the dealer is really replenishing his depleted stocks. The Scrap people are not much in evidence in this market save for their offerings of Pig Iron which was bought on speculation last November and earlier, and this Iron, coming on a listless market, serves to weaken it further locally. Furnaces, to be sure, are taking no cognizance of these offerings, and, while but little business seems going, prices are firm. Proposed changes in Steel plants, foundries and other establishments that have been wholly or partially idle are all going ahead on, the lines originally planned. The members of the various foundrymen's associations are getting together in anticipation of the national gatherings here in June. Some early plans will likely be discussed at the meeting of the Cincinnati section on the 23d inst.

Pig Iron.—It is a listless market, with furnaces maintaining an independent front, and actual transactions, either for spot or future delivery, very few. The presence of the Southern speculative Iron, bought during the last quarter by Scrap dealers, is felt here this week, and at \$12.75, Birmingham, No. 2, some of it is undoubtedly selling. This Iron is standard Southern grade, though not a Birmingham Iron, and runs high in phosphorus. Several blocks of it are owned by local and up the State people, probably altogether 15,000 to 20,000 tons. Consumers seem to have little interest in second quarter-requirements, and it is expected that the lull may continue for three or four weeks. Valley Iron is said to be encroaching in this territory at shaded prices. The inquiry from an Ohio Pipe maker for 9000 tons for delivery over the first half is said to have been satisfied by a Valley interest on a basis of \$15,90, delivered, for No. 3. At present prices of both Southern and Ohio Irons, the Valley with favorable freight rates is a strong competitor in a large part of Ohio manufacturing territory. The Ohio Pipe maker bought also a little low grade Southern Iron. The scarcity of Forge and No. 4 Foundry is not so noticeable as it has been, and there are a few blocks offered, the prize ranging from \$11.75 to \$12, Birmingham, for Forge. The Southern market seems to be firm, at \$13, Birmingham, for No. 2, for second quarter and immediate delivery, with an occasional sale of a special No. 2, at \$13.50. The Northern market seems hardly to reflect any change with but one furnace holding for the \$16 price. The flat price based on \$15.50 for No. 2 appears the proper quotation. A sale of Monday was 800 tons of Tennessee Iron to a St. Louis stove maker. Reports from Wellston indicate that the local company's No. 3 stack is completed, and will soon be blown in, increasing the output from 25 to 30 per cent. The Indiana manufacturing concern which asked for 500 to 1000 tons of Nos. 2 and 3 Foundry is said to have secured some of the r

- 10	-														
Southern	Coke,	No.	1.						 			\$16.	75	to	\$17.25
Southern	Coke,	No.	2.						 			16.	25	to	16.75
Southern	Coke,	No.	3.						 			15.	75	to	16.25
Southern	Coke,	No.	4.									15.	25	to	15.75
Southern	Coke,	No.	1 :	30	ft.							16.	75	to	17.25
Southern	Coke,	No.	2	80	ft.			0	 			16.	25	to	16.75
Southern	Coke.	Gra	y F	OF	ge				 			14.	75	to	15.25
Southern	Mottl	ed							 			14.	50	to	15.00
Ohio Silve	ry. 8	per	cen	t.	Si	li	en	n	 			19.	60	to	20.10
Lake Supe	rior (oke.	No	.]	١.					 	×				17.10
Lake Supe	rior (OKe,	NO		2					 					16.60
Lake Supe	rior (oke.	No	. :	3.					 					16.10
Standard	South	ern	Car	. 1	W	he	el		 			22	25	to	23.25
Lake Supe	erior	Car	Wh	ee	1.					9		21.	75	to	22.75

(By Mail.)

Coke.—Spot Furnace Coke is obtainable from the Connellsville field as low as \$1.60 to \$1.65, at oven, and on contract \$1.75 to \$2.10. West Virginia Cokes are reported a little stiffer here, and on contract Furnace brands are bringing \$1.85 to \$2, at oven. Pocahontas grades are reported about the same. For some special brands of West Virginia Furnace Coke \$1.75 is asked for spot shipment. Foundry grades are receiving little attention, and prices are off in all districts. Some favorite grades of both Connellsville and West Virginia Foundry Coke are obtainable as low as \$2.10, at oven, on contract, and the range is about \$2.10 to \$2.25, with some special brands quoted as high as \$2.50.

Finished Iron and Steel.—Jobbers, dealers, engineers and contractors agree that it is an unusually quiet market. The opinion is freely expressed by large factors in the trade that the tariff agitation is largely responsible, and that there will be little doing until the matter is settled. The Phelps Iron & Steel Company, a Kentucky corporation, with head-quarters in Cincinnati, organized late in 1908, has just increased its capital stock to \$10,000. This company, which is a selling agency, but with some special advantages in Southern territory, notes some fairly good inquiries from the South, where important building projects are being outlined. Prices are unchanged, being as follows, f.o.b. Cincinnati: Iron Bars, carload lots, 1.50c., base, with half extras; small lots from store, 1.85c., base, with half extras; small lots from store, 1.85c., base, with half extras; small lots from store, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, ¼-in, and heavier, carload lots, 1.85c.; small lots from store, 2.50c.; No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.15c.; small lots from store, 2.40c.; No. 10 and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; No. 12, carload lots, 2.5c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in, and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—Dealers as a rule are holding prices firm, with little response from consumers. There is scarcely enough business moving to make a market. The items most conspicuous at this time in this market are Rerollers, Relayers, Melting Steel and Cast Borings. From the wide difference of opinion among dealers as to prices on certain items, such as No. 1 Railroad Wrought and Melting Steel, it is felt that some short interests are covering. Dealers here are not buying much of anything from railroad offerings, claiming that the sellers' ideas of prices are pitched too high. The following prices are nominal, and are given as about representing the actual market, as nearly as it can be gauged under the circumstances, and are f.o.b. Cincinnati:

No. 1 R. R. Wrought, net ton	\$13.00 to	\$14.00
Cast Borings, net ton	6.50 to	7 50
Heavy Melting Steel Scrap, gross ton	14.00 to	15.00
Steel Ittriings, ner ton	6.00 to	7.00
No. 1 Cast Scrap, net ton	12.50 to	13.00
Burnt Cast, net ton	9.00 to	10.00
Old Iron Axles, net ton.	16.75 to	17.75
Old Iron Rails, gross ton.	15.00 to	16.00
Old Steel Rails, short, gross tonOld Steel Rails, long, gross ton	13,00 to	14.00
Relaying Rails, 56 lb, and up, gross ton	13.00 to	14.00 22.50
Old Car Wheels, gross ton	15.50 to	16.50
Low Phosphorus Scrap, gross ton	14.00 to	15.00
The state of the s	13.00 LU	10.00

Pittsburgh.

PABK BUILDING, January 20, 1909 .- (By Telegraph.)

Pig Iron.—As yet no buying movement in Pig Iron has developed, and the market continues very quiet. Few consumers of Pig Iron are operating to more than 50 per cent. of capacity, if that much, while some consumers are shut down entirely, with the result that the consumption is probably lighter now than in the closing months of last year. The impression is growing that more Pig Iron is being made than is being consumed, and prospects of higher prices for it in the near future are very uncertain. While the tone of the market is not as strong as it was in December, beyond a weaker feeling, prices have not materially changed. We quote: Standard Bessemer, \$16.50; Malleable Bessemer, \$15.75 to \$16; Basic, \$15.50 to \$15.75; No. 2 Foundry, \$15.50, and Gray Forge, \$14.50, all at Valley furnace, with a freight rate of 90c., a ton for Pittsburgh delivery.

Steel.—We note a sale of 1000 tons of large sized Billets at full prices. Practically all consumers of Steel are covered by contract against which specifications are coming in fairly well, but there is very little new buying. We quote Bessemer and Open Hearth Billets, 3% in. and larger, up to and including 0.25 carbon, \$25; 0.26 to 0.60 carbon, \$1 extra; over 0.60 carbon, \$2 extra, all f.o.b. Pittsburgh. For Wheeling, Martin's Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight, or 50c. additional, is charged. Sheet and Tin Bars in random lengths are \$27.50, f.o.b. Pittsburgh. Forging Billets take \$2 advance over Rolling Billets.

(By Mail.)

The most encouraging development of the week was the placing of orders for 2500 Steel cars. New orders and specifications against contracts since the first of the year have been light, so much so that several of the leading Steel companies that ran pretty steadily through the last three or four months of last year have been compelled to shut down plants until orders accumulate. Jobbers and consumers are cautious in placing new orders, with the result that buying is confined to small lots for actual needs. Orders entered so far by the mills this month show a falling off as compared with the same period in December, with the possible exception of one or two lines. The belief is getting more general that it will be well toward summer, or, perhaps, later, until the Iron trade is back to anything approaching normal condition. Pig Iron, Steel Billets, Steel Rails and other rolled products are all dull, but the market on the whole is fairly strong. The two exceptions to this are Coke and Scrap, these two products being very quiet, with prices weak and lower. Practically all grades of Iron and Steel Scrap have gone off about \$1 a ton in the past week, and there is little or no demand. Reports in the daily press of serious cutting in prices of rolled products are denied absolutely by the large interests.

Ferromanganese.—With no recent sales and little or no inquiry we quote best grades of foreign Ferro at \$44 to \$44.50, seaboard, equal to \$44.95 and \$46.45, delivered, Pittsburgh.

Ferrosilicon.—A sale is noted of two cars of 50 tons of 50 per cent, on the basis of about \$62.25, delivered, Pittsburgh. We quote the market on 50 per cent. Ferrosilicon at \$62 to \$62.50, Pittsburgh, the latter price being for large lots for prompt shipment.

Muck Bar .- The market is practically lifeless and prices

are a trifle weaker. We quote best grades of Muck Bar, made from all Pig Iron, at \$27.50 to \$28, Pittsburgh.

Wire Rods.—A local producer of Rods has recently come in the market. Sales have been made of 500 to 600 tons of Bessemer Rods for fairly prompt delivery at the full price of \$33, Pittsburgh. Regular prices are being held, and we quote Bessemer Rods at \$33; Basic, \$34, and Chain Rods, \$33, Pittsburgh.

Steel Rails.—For the first time in some weeks Nos. 1, 2 and 3 Rail mills at the Edgar Thomson plant are in operation, with a fairly good schedule ahead of them, but are still gaited to about 35 per cent. or less of actual capacity. Reports are that the New York Central, Baltimore & Ohio and Pittsburgh & Lake Erie railroads are nearly up to the point of placing their contracts for Rails for this year. timore & Ohio order is expected to amount to 100,000 tons or more, and the Lake Erie to 9000 tons. The principal inquiry The principal inquiry at present is from traction lines, which are placing some small orders and are specifying against contracts. the Carnegie Steel Company entered orders and received specifications against contracts for 2605 tons of Light Rails. Prices on Rerolled Light Rails are still being sold at \$2 to \$3 a ton under Light Rails rolled from Billets. Prices on new Light Rails, rolled from Billets, are as follows: \$25 for 25 to 45 lb. Sections, with \$1 advance for 20 lb., \$2 advance for 16 lb., and \$3 advance for 12 lb. Standard Sections are \$28, at mill, and Angle Splice Bars, 1.65c., at mill.

Skelp .- The general situation is quiet, but the mills rolling Iron Plates have taken some nice orders and have from six weeks to two months' work ahead of them. Prices are unchanged but firm, and we quote: Grooved Steel Skelp, are unchanged but him, and we quote: Grooved Steel Skelp, 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.75c. to 1.80c., and Sheared Iron Skelp, 1.90c. to 1.95c., Pittsburgh. We note sales of 1500 to 2000 tons of Sheared Iron Plates at about 1.90c., Pittsburgh.

Structural Material.-Prices on fabricated work are stated to be more demoralized than ever. Several Structural concerns are practically out of the market, being unwilling to meet the low prices at which work is going. Bids go in this week for two bridges for the Chicago & Northwestern at Chicago, about 500 tons, and also for the new Jenkins Building in this city, about 400 tons. W. N. Kratzer & Co. have taken the Steel for the new Kenyon Theatre on the North Side, about 300 tons, Wm. Miller & Sons being the general contractors. We quote for him Fittsburgh. We quote, f.o.b. mill, Pittsburgh: general contractors. general contractors. We quote, 1.0.b. mill, Pittsburgh: I-Beams and Channels, 3 to 15 in., inclusive, 1.60c., net; I-Beams over 15 in., 1.70c., net; H-Beams over 8 in., 1.80c.; Angles, 3 to 6 in., inclusive, ¼ in. and up, 1.60c., net; Angles, over 6 in., 1.70c., net; Angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, Steel Bar card; Tees, up, 1.65c., net; Zees, 3 in. and up, 1.60c., net Augles, Channels and Tees under 3 in., 1.50c., base, half extras, Steel Bar card; Deck Beams and Blub Angles, 1.90c. net; Hand Rail Tees, 3c., net; Checkered and Corrugated Plates, 3c., net.

Sheets .- A little more disposition is shown by jobbers to stock up, and some fairly large orders have been placed for both Black and Galvanized Sheets. The general situais quiet, but it is believed that jobbers and consumers will soon begin to place orders for spring requirements, and the mills confidently expect a heavier demand in the near the mills confidently expect a heavier demand in the near future. Prices continue to be shaded from \$1 to \$2 a ton, depending on the order. Prices for shipment from mills are as follows: Blue Annealed Sheets. No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets, Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c.; No. 28, Painted Roofing Sheets, \$1.75 per square, and Galvanized Roofing Sheets, \$1.75 per square, for 2½-in. corrugations. Sheets, No. 28, \$3.10 per square, for 2½-in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade, under the usual conditions, jobbers charging the usual advances for small lots from store.

Plates.-Specifications for l'laces and other shapes on Steel cars ordered in November and December of last year are now being received by the Steel companies that participated in this business, and the rolling schedules of the larger mills are better than for some time. The New York Central mills are better than for some time. The New York Central has placed an order for 1000 Steel hopper cars with the Standard Steel Car Company, the Plates and Shapes, about 12,000 tons, to be furnished by the Carnegie Steel Company, and the same road has ordered about 750 cars from the American Car & Foundry Company, the Plates and Shapes for which will be rolled by the Jones & Laughlin Steel Company. New orders for Plates are fairly heavy; about as good as in the early part of December, and very much better than at this time a year ago. The Plate mills are now working up to probably 60 per cent. of capacity. Prices on the narrow sizes are still being shaded by some mills to the extent of \$1 to \$2 a ton, depending on the desirability of the order. Prices for mill shipment are as follows: Tank Plates, 34 in. thick, 61/4 in. up to 100 in. wide, 1.60c., base, at mill. Pittsburgh. Extras over this price are as follows:

burgh. Extras over this pince are as follows:

Tank, Ship and Bridge quality, ¼-in, thick on edges, 100 in, wide, down to but not including 6 in, wide, is taken as base.

Steel Plates up to 72 in, wide, inclusive, ordered 10.2 lb, per square foot, shall be considered ¼-in, Plate. Steel Plates over 72 in, wide must be ordered ¼-in, thick on edge, or not less than 11 lb, per square foot, to take base price. Steel Plates over 72 in, wide ordered less than 11 lb, per square foot down to the weight of 3-16-in, shall take the place of 3-16-in.

Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in, to and including 3-16 in, Plates

THE TAXABLE PROPERTY OF THE PR
Gauges under 4-in, to and including 3-16 in. Plates
on thin edges\$0.10
Gauges under 3-16-in, to and including No. 815
All sketches (excepting straight taper Plates vary-
ing not more than 4 in, in width at ends, nar-
rowest end being not less than 30 in.)
Complete Circles
Boiler and Flange Steel Plates
"A.B. M. A." and ordinary Firebox Steel Plates 20
Still Bettom Steel
Marine Steel
Locomotive Firebox Steel
Shell grade of Steel is abandoned,
For widths over 100 in. up to 110 in
For widths over 115 in. up to 120 in
For widths over 120 in. up to 125 in
For widths over 125 in. up to 130 in
For widths ever 130 in
TERMS Net cash 30 days. Pacific Coast base, 1.50c., f.o.b
Pittsburgh.

Tin Plate.- Few new orders for Tin Plate have been placed for some time, but the mills are busy on specifications against contracts received in October and November last year, most of these contracts calling for shipment prior to April I, or not later than May 1. Prices are fairly strong, but, it is reported, are occasionally shaded by some mills. We quote: \$3.70 for 100-lb. Cokes, I4 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Iron and Steel Bars. - Specifications against contracts for Steel Bars continue to be received by the mills in heavy volume, mostly from the implement makers and car builders, but new orders being placed are few and mostly for small lots for actual needs. lots for actual needs. The consumption of Iron and Steel Bars in the last few years has wonderfully expanded, and this is shown in the heavy specifications coming in against contracts in a period when general lines of trade are dull. Makers of Iron Bars report a fair run of new orders, but mostly small lots for current needs, while specifications against contracts are quite satisfactory. There is no disposition on the part of mills rolling Iron and Steel Bars to shade prices in order to induce consumers to place contracts. We quote Iron Bars at 1.42c., Pittsburgh, for Western shipment, or 1.60c., Chicago, while the price for delivery in the Pittsburgh District is 1.50c. Iron Bars rolled from strictly Muck Bar stock, such as Zug, Lockhart and a few others, held at about 1.90c., at mill. Steel Bars are firm at 1.40c., Pittsburgh, for base sizes.

Hoops and Bands.—Jobbers and consumers have not yet started to place contracts for delivery through this year. Regular prices are as follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars, Pittsburgh, in carload lots, for delivery during 1909.

Railroad Spikes .- The demand for the smaller sizes of Spikes is fairly active, but the expected large contracts from the railroads under negotiation some time ago have not materialized. Prices are firm, and we quote: Standard sizes, $4\frac{1}{2} \times 9.16$ in., at \$1.70, and the smaller sizes at \$1.80 per 100 lb., in carload and larger lots, with an advance of 5c, per 100 lb. for less than carload, f.o.b. Pittsburgh.

Merchant Steel .- Orders are scarce and are only for small lots for actual needs, while specifications against contracts so far this month have should start before long for the expected expring trade. To small start before long for Shafting the expected spring trade. Large consumers are pretty well covered by contracts, against which they are specifying at a fairly satisfactory rate, but new orders being placed are only for small lots to meet current needs. Regular prices, which are being shaded, are as follows: Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher prices being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.: Tire Steel, Iron finish, $1\frac{1}{2}$ x $\frac{1}{2}$ in. and heavier, 1.40c.: under $1\frac{1}{2}$ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b. at mill.

Spelter.—The market is firm, with more inquiry. We quote prime grades of Western at 5c. to 5.05c., East St. Louis, equal to 5.12½c. and 5.17½c., Pittsburgh.

Merchant Pipe.—Several of the leading mills state that new orders for Merchant Pipe placed this month compare favorably with the same period in December, but the general condition of the Pipe trade is only fairly active, which is usual in the winter months. No large contracts for line

Pipe have lately been placed, aside from some orders from the Standard Oil Company, which is a regular buyer of all kinds, but several large gas and oil projects are on the carpet, and if put through will require a heavy tonnage. Prices on both Iron and Steel Pipe are claimed to be absolutely maintained by the mills. Discounts on Steel Pipe, 34 to 6 in., to the large trade, are 75 and 5 per cent. off list, while a few of the very largest jobbers, that have mill connections, are given 76 and 5 per cent. off list. Regular discounts are as follows:

													3	1	63	.(0)	20	11	21	t	1	Pi	p	e				J	0		, ca	rloads,
																														E	Black.		Galv.
1/8	to	1/4		in																											.67		51
3/8	in.																														. 69		55
1/2	in.																														.71		59
8/4	to	6	1	n.		0	0			٠	0			٠	٠				0	0		0	0				0				.75		65
3																										0					.72		57
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14	to	3%	i	n.																											.60		48
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1/2	to	8	i	n.								0						0						0			0	0	0	0	.56		45

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
1/4 to 1/4 in	85	%
% in	67	53
1/2 fm	00	57
72 In	09	21
% to 6 in	73	63
7 to 12 in	70	55
Extra strong, plain ends:		
Extra strong, plain ends:	58	46
1/6 to 4 in	65	53
½ to % in	61	49
Double extra strong, plain ends:		40
½ to 8 in	54	43

Boiler Tubes.—The demand for both Locomotive and Merchant Tubes is light, and only for small lots, to meet actual needs. This trade is in very unsatisfactory condition, from the standpoint of both orders and prices. Regular discounts on Merchant Tubes, which, however, are being shaded and do not represent the actual market, are as follows:

	Boiler Tubes.		
		Iron.	Steel.
1 to 1½ in		42	47
1% to 21/4 in		42	59
2½ in		47	61
2% to 5 in		52	65
6 to 13 in			59
21/2 in. and smaller,			
2% in, and larger, or	ver 22 ft. long, 10 pe	r cent, net e	xtra.

Iron and Steel Scrap.—The Scrap market has shown a decided decline in the past week, due to the lack of buying by consumers, and also to the fact that a good deal of Scrap is loaded on cars and has to be moved, owners being compelled to accept for it the best prices they can get. Another embargo has been placed on Scrap destined for the Allegheny Steel Company at Brackenridge, Pa., and this has also had the effect of weakening the market. We have made a material reduction in prices on nearly all grades of Scrap, dealers quoting now about as follows, per gross ton: Heavy Steel Scrap, \$16.50 to \$16.75; Cast Iron Borings, \$9.50 to \$10: Bundled Sheet Scrap, \$13.50; No. 1 Busheling Scrap, \$14.25 to \$14.50; No. 2, \$10 to \$10.25; Iron Axles, \$22.50 to \$23; No. 1 Cast Scrap, \$14.50 to \$15; Sheet Bar Crop Ends, \$19.75 to \$20; Rerolling Rails, \$17.25 to \$17.50, delivered, Cambridge, and \$18.25 to \$18.50, delivered, Cumberland; Steel Axles, \$19 to \$19.25; Low Phosphorus, 0.04 and under, \$18; Machine Shop Turnings, \$11.75 to \$12; Grate Bars, \$12 to \$12.50; Railroad Malleable, \$15.25 to \$15.50; Railroad Wrought Scrap, \$16.50 to \$16.75; Locomotive Tires, \$16.75 to \$17; Iron Rails, \$18.25 to \$18.50.

Coke.—The market is dull and weak. Best grades of Furnace Coke are quoted at \$1.60 to \$1.65 per net ton, at oven, for spot shipment, and best makes of 72-hr. Foundry Coke at \$2 to \$2.25. On contracts standard grades of Furnace Coke, coming within the required limits of sulphur and ash, are offered at \$1.90, and on a firm offer from a desirable customer this price might be shaded. Standard makes of 72-hr. Foundry Coke on contracts are offered at \$2.25 to \$2.50. The output in the Upper and Lower Connellsville regions last week was about 245,000 net tons, a decrease over the previous week of about 7000 tons.

The M. Streng Sons Company, N. S., Pittsburgh, some time ago purchased a site of 7 1-3 acres of land at Carnègie, Pa., and has now erected a steel building, 120 x 200 ft., which is fitted with three shears and other machinery. The property has a siding, track scales, hoisting apparatus, &c., and is desirable in every way for carrying on an Iron and Steel Scrap business. The company will continue its warehouses and Scrap yards on the North Side, Pittsburgh, but the main yard will be at Carnegie.

S. A. Foster, formerly with L. B. Foster & Co., Pittsburgh, has formed the American Rail Company at 706 Park Building, Pittsburgh, to deal in Rails and Railroad Supplies.

Birmingham,

BIRMINGHAM, ALA., January 18, 1909.

Pig Iron.—With the trade apparently content to await developments, and the condition of producers' order-books fairly satisfactory, this market is very quiet. The limited quantity of low grades available for early shipment and the difficulty in obtaining advanced deliveries, as indicated by the attitude of sellers as to entering into contracts, has been productive of considerable negotiation by leading consumers. The purchases accredited such interests during the past week aggregate some 5000 to 10,000 tons. This tonnage is well distributed among the largest producers, and it is understood that in the case of the most significant engagements a liberal portion of high grades was included in order that the usual differential of 50c. per ton might be had. There are no recent sales reported at higher figures than \$13, Birmingham, and it is probable that the delivery of recent round tonnage engagements covers a longer period than is to be implied by quotations on that basis. The rumored sale at the time of last report of 20,000 tons in one lot by a local interest is confirmed, but details of the transaction are not given out. Indications favor a significant portion of the make during the second quarter as yet to be disposed of, and it is believed that the tonnage booked for delivery further advanced is not of sufficient volume to be taken into consideration. The lack of interest being manifested just at this time by melters in practically all lines of the trade as to last half requirements is marked, but there seems to be no incentive to offer lower quotations as an inducement for trading. There is a possibility of sufficient resale Iron being offered for delivery during the second quarter as to figure in ultimate developments, but so far sellers have no complaint on that score,

Cast Iron Pipe.—The Pipe market just at this particular time can be said to be very active, with prices stiffening. It is learned to-day that Kansas City, Mo., has just placed an order for 8500 tons; that San Francisco is to be in the market in about 10 days for 40,000 tons, and that Salt Lake City specifications are out for quite a large tonnage. The encouraging feature of the market lies in the fact that inquiries are brisk.

Old Material.—This is largely a dealer's market, notwithstanding the favorable indications of a week or more past. Quotations as recently revised are being adhered to, but a criterion of values is hardly offered. We note the sale of one or more carloads of Light Cast and a small quantity of Steel Scrap the past week, which was the most significant transaction reported other than between dealers. We quote dealers' asking prices as follows:

Old Iron Rails\$15.00 to	\$15.50
Old Iron Axles 16.00 to	17.00
Old Steel Axles	
No. 1 Railroad Wrought 14.00 to	14.50
No. 2 Railroad Wrought 11.00 to	11.50
No. 1 Country Wrought 11.00 to	11.50
No. 2 Country Wrought 9.50 to	10.00
No. 1 Steel 11.00 to	11.50
No. 1 Machinery	12.00
Standard Car Wheels 13.50 to	14.00
Tram Car Wheels 12.00 to	12.50
Stove Plate and Light Cast 9.50 to	10.00
Cast Borings 5.50 to	6.00

Buffalo.

BUFFALO, N. Y., January 19, 1909.

Pig Iron.—Although the market still remains to a large extent in the midwinter comatose condition, there is a slight improvement in inquiry, especially from foundries dependent upon railroad work and from agricultural implement makers. Business among the Malleable Iron people is also looking up, so that there are distinctly encouraging features in the outlook for the immediate future. There has also been some inquiry for last half deliveries for Foundry grades, but the furnaces are inclined to confine their operations to the first half. Prices for the first quarter and half remain firm and unchanged as follows, f.o.b. Buffalo:

No. 1 X Foundry		 						. \$16.50	0 \$17.	00
No. 2 X Foundry								. 16.00 (0 16.	50
No. 2 Plain								. 15.501	0 16.	.00
No. 3 Foundry.								. 15,50 1	0 16.	00
Gray Forge										
Basic										
Malleable Besser	ner							. 17.00	to 17.	50
Charcoal								20.75	0 21	25

Finished Iron and Steel.—Some improvement is noted in specifications on contracts over last week, particularly for Iron and Steel Bars and Angles. New business continues moderate in volume, mostly for small lots. In Structural Material the demand is fairly well maintained. Bids for the Steel for the Central City Refrigerator Company's cold storage building, Syracuse, opened on the 15th inst., showed the Jones & Laughlin Steel Company to be low bidder for the 1193 tons required at \$65,543, delivered and erected, and that company has been awarded the contract. Specifications are about ready for bids for the Steel for the large addition which the Carborundum Company is to make to its plant at Niagara Falls.

Old Material.—The market is practically at a stand-

still, there being an entire absence of demand, the dealers recognizing the futility of endeavoring to press sales under present conditions. Prices are not being cut, holders of stock having apparently determined to await better conditions, which are looked for in the near future. We quote the nominal schedule, per gross ton, f.o.b. Buffalo, as follows:

Heavy Melting Steel Scrap \$15.00 to \$15 Low Phosphorus Steel Scrap 21.00 to 21 No. 1 Railroad Wrought	.50
No. 1 Railroad and Machinery Cast Scrap	5.50
Old Steel Axles 18.50 to 19	0.50
	2.75
Railroad Malleable 14.00 to 14	1.50
Locomotive Grate Bars 12.00 to 15	2.50
	2.50
Clean Cast Iron Borings 9.00 to	9.50
No. 1 Busheling Scrap 14.00 to 14	L.50

New York.

New York, January 20, 1909.

Pig Iron.—Some recent sales are reported in eastern Pennsylvania and in Buffalo, but business in this section has been slow. The Pipe shops are still the most conspicuous in the market, inquiries having been received from nearly all of them during the past week. We quote \$17.25 to \$17.50 for No. 1 Foundry, \$17 to \$17.25 for No. 2 Foundry and \$16.50 to \$16.75 for No. 2 Plain, at tidewater. Alabama Irons are quoted \$17.50 to \$17.75 for No. 1 Foundry and \$17.25 to \$17.50 for No. 2 Foundry.

Steel Rails.—The Illinois Steel Company received the Great Northern's order for 6500 tons of Rails last week, and also booked 2000 tons for a frog and crossing company, 1000 tons for the Toledo, Peoria & Western, 1000 tons for the Detroit & Mackinac and 500 tons of scattering orders—a total of 11,000 tons. The Carnegie Steel Company will roll 1000 tons for the Cincinnati, Hamilton & Dayton receivers. It has been allotted 35,000 tons of the Pennsylvania order, of which 3500 tons is for the Cleveland, Akron & Columbus. An Eastern Rail mill will have employment for a part of January by the advancing of rolling orders on a part of the Seaboard Air Line contract.

Structural Material.—The good run of building contracts involving from 300 to 1000 tons of Steel continues to be the dependence of the fabricating shops. Railroad business has almost disappeared from the reckoning. The 8500-ton bridge inquiry of the Northern Pacific has been dangled before the bridge companies for several months, but there is now no expectation that more than a fraction of it will finally get on the books for spring and summer operations. The Wisconsin Central is inquiring for 550 tons of bridges, and the St. Paul has placed 125 tons, its third small lot in the past two months. The Wisconsin Bridge & Iron Company has the contract for a bridge the St. Louis, Brownsville & Mexico Railroad will build over the Rio Grande River calling for 530 tons. Among new inquiries are those on the Newman & Levenson dry goods building, 400 tons, and the Kohler & Chase Building, 350 tons, at San Francisco; a library building, at Springfield, Mass., 500 tons; an office building, at Scranton, Pa., 600 tons; the Apollo Theater, at Seventh avenue and Forty-sixth street, New York, 750 tons. On some of these bids have gone in as well as on a refrigerating plant, at Syracuse, N. Y., 1200 tons, and the O'Rear-Leslie Investment Company's office building, at Kansas City, Mo., 440 tons. Among contracts closed are 300 tons for pier shed No. 32, East River, New York, by the American Bridge Company; 300 tons for the Gillette Safety Razor Company's Building, Boston, by G. W. & F. Smith; two schools, at Philadelphia, 800 tons, by the McClintic-Marshall Construction Company; 675 tons for the Crane Company's San Francisco warehouse, by the Milliken Brothers' receivers: 1500 tons for the Max Cohen Building on West Twenty-seventh street, New York, by Alfred E. Norton, Boonton, N. J.; 350 tons for the Max Cohen Building on West Twenty-seventh street, New York, by Alfred E. Norton, Boonton, N. J.; 350 tons for the Union Metallic Cartridge Company; Grot tons for the Falk Mfg. Company's foundry, at Milwaukee, by the Worden-Allen Company

Ferroalloys.—The market is exceedingly quiet and what limited inquiry there is can be satisfied at \$44, Baltimore, for Ferromanganese, and \$65 to \$67, Pittsburgh, for 50 per cent. Ferrosilicon.

Bars.—Some new business is being done in Iron Bars, with a little better specifying by railroad shops. Inquiries are probably a little more numerous. The volume of trade, however, is still quite small. Prices on Iron Bars of com-

mon quality range from 1.45c. to 1.50c., but on Good Refined Iron Bars from 1.56c. to 1.60c., tidewater. Steel Bars are firmly held at 1.56c., tidewater.

Plates.—Current business is confined to small lots. Prices on Standard Sized Plates are unchanged, as follows, at tidewater: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Cast Iron Pipe.—The demand is light in this immediate vicinity, with contracts for 200 tons representing about the maximum of the business now being placed. Prices are weak, as some of the founders seem to be a little more anxious to secure the orders. Carload lots of 6 in. are nominally quoted at \$24 per net ton, tidewater, for prompt delivery.

Old Material.—The market is weaker on most grades, notwithstanding some favorable local conditions. The chief cause is the rapidity with which shipments have been made on contracts, filling consumers' yards in eastern Pennsylvania and causing the issuance of orders to cease further deliveries. A sale of 7000 tons of Heavy Melting Steel Scrap to a consumer in eastern Pennsylvania is reported at about \$17, delivered. Smaller sales have been made at about the same figure. The demand for rolling mill stock is fair with some rather good blocks of No. 1 Railroad Wrought, Borings and Turnings changing hands. The foundries are buying but little, indicating that the demand for castings is light. The railroads have about cleaned up their lists for the month, the sales on this account having aggregated about 35,000 tons on which dealers, bidding what they considered somewhat high prices, secured much less than expected. The larger part of this quantity of Scrap evidently went directly to consumers. Stocks of Scrap are much under the usual quantity in local yards. The holdings are now mainly by the larger dealers. Quotations are as follows, New York and vicinity, per gross ton:

Old Girder and T Rails for melting \$14.50 to	\$15.50
Heavy Melting Steel Scrap 14.50 to	15.50
Old Steel Rails, rerolling lengths 15.50 to	
Relaying Rails 22.00 to	
Old Iron Rails 19.00 to	
Standard Hammered Iron Car Axles 21.00 to	
Old Steel Car Axles 19.50 to	
No. 1 Railroad Wrought 17.00 to	
Iron Track Scrap	
No. 1 Yard Wrought, long 16.00 to	
No. 1 Yard Wrought, short 15.25 to	
Light Iron 10.00 to	
Cast Borings 10.50 to	
Wrought Turnings 12.00 to	
Wrought Pipe	
Old Car Wheels	
No. 1 Heavy Cast, broken up 14.00 to	
Stove Plate 12.00 to	
Locomotive Grate Bars 12.00 to	
Malleable Cast	
Mantable Cast	12.00

Metal Market.

New York, January 20, 1909.

Pig Tin,—The same unsatisfactory conditions, which have been repeatedly referred to in the last few weeks, continue. Some little inquiry is in the market for future Tin, but the outlook is so clouded that few venture to make commitments. By this is meant the statistical position and the known movements of the metal. Shipments from the Straits for the first half of January were 3025 tons, and estimated total January shipments will be 5600 tons. Then, too, production in other parts of the world continues to keep up the old high level, and perhaps exceed it. With a Banca sale coming off this month, it is not at all unlikely that the visible supplies will be at least 22,000 tons by the end of the month. The lowest prices since July last year have been made this week, the fluctuations being as follows:

																									Cents.
January	13.		6			*		8	×	8	*	8		*				*	×		 				28.10
January																									
January																									
January	18.		0			0	0	b		0	0	0	0		0		0					 		4	27.621/9
January	19.	è	ĸ.	n .					,	9		8		8		8							*	,	27.70
January	20																								98 00

The arrivals so far this month are large, amounting to 2572 tons, and there are afloat for American ports 3060 tons. The London market is about £1 lower than last week, at £126 12s. 6d. for spot and £128 10s. for futures.

Copper.—Prices have melted away slowly, but steadily, and business is extremely limited. From outside sellers Electrolytic Copper can be had at 13.75c., net cash, f.o.b. New York. This of course applies only to large lots, but shows the trend of the market. Buyers for European account can secure even lower figures. These concessions are being made by practically all of the selling companies, with the exception of the United Metal Selling Company, controlling the Amalgamated output, which company continues to quote 14.50c., delivered 30 days. While consumption is small, still it exceeds the production of outside producers, and should this strong company be able to maintain its price some consumers at least would have to pay that for a portion of their metal. Lake Copper is nominal. No sales of any description are reported, but holders are asking 14.75c., which

of course they cannot get in light of the lower prices for Electrolytic. In the meantime the old producers are making as much Copper as ever, and the new companies which have only recently begun to put their Copper on the market are steadily increasing their output. Unless the situation changes shortly it will call for heroic measures. The London market is about £1 15s. lower than last week, closing at £60 7s. 6d. for spot and £61 5s. for future. The exports so far this month are 12,900 tons.

Waterbury Average.—The Waterbury Average for December was 14.50c.

Pig Lead.—Independent producers are willing to sell at lower figures than last week, and Lead can be had from them as well as the American Smelting & Refining Company at 4.20c. In St. Louis, the market is easier at 4.05c.

Spelter.—Prices are lower. Spot shipments can be had at 4.95c, to 5c, St. Louis, 5.10c, to 5.15c, New York. It is possible that owing to the excessive amount of Spelter in the New York market lower figures would be named for a prompt delivery.

Antimony.—Prices are unchanged at 8c. to 8.12c. for Hallett's, 8.25c. to 8.371/2c. for Cookson's, and outside brands at 8c.

Tin Plate.—The market continues steady. Prices are firm at \$3.70, Pittsburgh, and \$3.89, New York, for 100-lb. I C Coke Plates.

Old Metals.—Business is very dull, but Old Metal dealers are not disposed to buy Scrap on the falling Copper market. The selling prices printed below are more or less nominal.

Cents.
Copper, Heavy Cut and Crucible13.50 to 13.75
Copper, Heavy and Wire
Copper, Light and Bottoms
Brass, Heavy 9.50 to 9.75
Brass, Light 7.50 to 8.00
Heavy Machine Composition
Clean Brass Turnings 8.50 to 9.00
Composition Turnings10.00 to 10.50
Lead, Heavy 3.90 to 4.00
Lead, Tea 3.65 to 3.75
Zinc Scrap 3.75

Iron and Industrial Stocks.

NEW YORK, January 20, 1909.

The stock market has been uninfluenced by important news, and price movements have fluctuated according to the temporary interest shown by speculators. In the main the tendency has been toward greater strength. The range of prices on iron and industrial stocks has been as follows from Thursday of last week to Monday of this week:

Allis-Chalm., com. 14¼- 147½ Allis-Chalm., pref. 46 - 47¾ Beth. Steel, com. 24 - 24½ Beth. Steel, pref. 50 - 51 Can, com		
Railway Spr., com. 46 - 461/2 HarbWalker Ref 181/2	Allis-Chalm., pref. 46 47% Beth. Steel, com. 24 24½ Beth. Steel, pref. 50 51 Can, com. 8 88% Can, pref. 72½ 73½ Car & Fdry, com. 47¾ 48% Car & Fdry, pref. 108 108% Colorado Fuel 39% 41¾ Gen. Electric 153½ 155½ Great No. ore cert. 71 71½ Int. Harv., com. 63 63% Int. Harv., pref. 109½-110 Locomotive, com. 55½ 56½ Locomotive, pref. 111 Nat. En. & St., com. 13½-14 Nat. En. & St., pref. 141%	Republic, pref. 86 86 4864 Sloss, com. 771/4 78 Sloss, pref. 1091/2 Pipe, com. 281/2 291/4 Pipe, pref. 511/6 53 Steel, com. 511/6 53 Steel, pref. 1121/4 1141/4 West, Elec. 791/4 82 Chl. Pneu. Tool. 26 27 Am. Ship, com. 58 Am. Ship, pref. 58 Am. Ship, pref. 58 Am. Ship, pref. 151/2 16 Cambria Steel. 381/4 391/8 L. S. Corp. 151/2 16 Penna. Steel, com Penna, Steel, com Cruc. Steel, com. 77/8 8 Cruc. Steel, com. 77/8 8
Railway Spr., pref101	Pressed St., pref102 Railway Spr., com. 46 - 46½	Cruc. Steel, pref 58 - 601/4
	Kallway Spr., pref101	

Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 52%, preferred 113%, bonds 103%; Car & Foundry common 48½, preferred 109; Locomotive common 56, preferred 111; Colorado Fuel 41¼; Pressed Steel common 41¾, preferred 102; Railway Spring common 48; Republic common 25½, preferred 86; Sloss-Sheffield common 78; Cast Iron Pipe common 29¼, preferred 75; Can common 8¼, preferred 72½.

A Tariff Commission Convention.—A National Tariff Commission Convention is to be held at Indianapolis, February 16-18, according to a call just issued, which is signed by a large number of associations of manufacturers and merchants. The call states that the purpose of this convention is to give immediate and adequate expression to the existing public demand for the creation of a permanent nonpartisan, semijudical tariff commission which shall collect, collate and study industrial and commercial facts in this and other countries pertinent to the tariff question and for the information and use of Congress and the Executive. The convention will consist of delegates appointed by commercial and other organizations of the country, by Governors of States and by Mayors of cities. The convention will be held in Tomlin-

son Hall. Arrangements are being made by a committee of which Henry Riesenberg is chairman, to be addressed at the National Tariff Commission Convention headquarters, Majestic Building, Indianapolis.

The Midvale Steel Company's Annual Report.

The report of the Midvale Steel Company, Philadelphia, for the fiscal year ending October 31, 1908, shows the following results as compared with the previous year:

1906-07.	1907-08.	
\$914,929 (27¼) 206,250	Profits over all costs, charges and expenses, including depreciation\$306,272 Deduct dividends(10%) 75,000	
167,122	Adjustment value of bar steel 162,751	
\$541.557	Ralance surplus for year \$68.521	

The balance sheet at the close of each of the past two fiscal years was as follows:

Assets.	
1908.	1907.
Property and equipment\$9,814,419	\$9,987,014
Patterns 200,000	200,000
Worked materials 1,657,751	1,839,456
Raw material 378,400	389.132
Merchandise, coal, &c	398,655
Bills and accounts receivable 785,827	982,960
Investments in bonds	
Cash 87,542	183,326
Totals\$13,331,222	\$13,980,543
Liabilities.	
Capital stock \$750,000	\$750.000
Bills payable 875,000	1,200,000
Accounts payable 395,590	788,225
Miscellaneous	375
Surplus11,310,464	11,241,943
Totals\$13,331,222	\$13,980,543

At the annual meeting of the company, held January 11, the following named directors were re-elected: Charles J. Harrah, James F. Sullivan, Charles B. Dunn, A. E. Petre and Howard Sellers.

Wrought Iron Cement Lined Water Pipe.

A paper by Leonard Metcalf, Boston, Mass., read before the New England Water Works Association, December 9, 1908, deals with wrought iron cement lined water pipe. After an exhaustive discussion of the methods of building such pipe lines and a résumé of the experience with them in various cities, the author states his conclusions, as follows:

1. Experience in this country with wrought iron cement lined pipe systems for distribution purposes has in general been adverse and has led to its replacement with cast iron pipe, except, perhaps, under conditions where the pressure does not materially exceed 65 lb. per square inch and where there has been but little disturbance of the ground adjacent to the pipe trench which might cause settlement or other injury to the pipe line.

2. Experience in this country with wrought iron coment lined pipe systems for supply mains has been much more satisfactory than for pipe distribution systems, and many old wrought iron cement lined supply mains are still in active use and giving satisfactory and conomical service, particularly under such conditions as are usual in the case of these supply mains—light pressure, secure foundation, and private rights of way within which the pipes are located, resulting in little danger of disturbance.

3. It is still possible that economical means will hereafter be developed for lining steel or even cast iron pipe in a similar manner to that so successfully now employed in lining service pipes with cement, which will result in a better pipe than any yet used But such use of cement is likely to be limited to furnishing a durable coating rather than water tightness and added strength to the pipe.

The Keystone Furnace Construction Company, contracting engineer and founder, is a new incorporation with offices at 823 Fulton Building, Pittsburgh. L. L. Knox is general manager. The company controls certain patents on open hearth furnaces and other appliances.

Detinning Tin Plate Scrap.

Dr. K. Goldschmidt of Essen, Germany, who is well known as the inventor of thermit, has been identified for many years with the industry of detinning tin plate scrap. At the last meeting of the Verein deutscher Eisenhuettenleute he read an elaborate paper on that industry, tracing its history and describing the earlier methods with their drawbacks. He describes the present chlorine process, which is based upon the fact that dry chlorine gas unites under the development of considerable heat with tin forming a tin chloride, which is a heavy liquid, and which fumes to an extraordinary degree in contact with air. Dry chlorine does not attack iron, but the detinned iron is subject, to a very rapid rusting. It appears that iron detinned by the chloride process is usually covered with a very minute film of anhydrous fron chloride, which absorbs moisture readily. This is reduced to ferrous chloride, which in turn draws oxygen and moisture from the air, and is converted to oxychloride which is reduced to ferric chloride by iron, thus constituting a chain.

In manufacturing practice it is therefore exceedingly important that moisture be excluded and also that organic substances be kept away. Tin chloride is a substance which attracts water with extraordinary energy and carbonizes organic substances, forming a product which does not distill readily, and would therefore retain the tin on the iron.

The tin plate scrap is pressed into bundles, and put into baskets, which are lifted into large cylinders. latter are closed, and chlorine is introduced, care being taken to prevent a rise in temperature. When tin and chlorine combine upward of 1000 calories is developed. Careful cooling and continuous carrying off of the heat are therefore necessary. In order to effect the detinning of the interior of the bundles, chlorine is introduced under pressure of several atmospheres. The gaseous chlorine combines with the tin to form a liquid chloride, and therefore condenses, which furnishes an excellent indication of the completion of the reaction. As long as tin is still present chlorine condenses and the pressure falls. If the pressure in the closed cylinder remains constant for some time, it is a clear sign that chlorine finds no more tin with which to combine. The chlorine and tin chloride are then removed, the bundles are carefully washed and are ready for the open hearth furnace. tin chloride is sold to silk dyers.

The increasing demand for tin scrap has put up prices, and detinning plants are now struggling with the problem of detinning old cans, &c. In the case of these the residues of their contents, the rubber rings and the solder cause difficulties. The procedure now is to press the old cans and at the same time to perforate them with a multitude of holes, so as to be able to wash them. Then all the adhering fats, lacquers, &c., are saponified by washing in alkaline solutions and in pure water. Finally the solder is melted off in a furnace, and the rubber washers are destroyed by the heat. The cans are then pressed into packages and are put into the detinning cylinders.

Dr. Goldschmidt estimates that Germany works up annually about 75,000 tons of tin scrap, the rest of Europe 25,000 tons and the United States 60,000 tons, making a total of 160,000 tons, producing the equivalent of 3000 to 3500 tons of tin. If the effort is successful of detinning old cans, the recovery of tin will be much increased, and the amount of open hearth working stock available also be augmented.

The Gobeille-Harris Pattern Company.—In part through the activity of the Industrial Commission of Niagara Falls, N. Y., the Gobeille-Harris Pattern Company has just started business in that city. The new enterprise is headed by Joseph Leon Gobeille and William D. Harris. The company proposes to design and manufacture patterns for stove foundries and for all manufacturers of iron, brass and bronze castings. It has secured for its art department the services of capable designers, modelers and carvers, and will make a specialty

of patterns for artistic metal work. In view of the great interest taken in the molding machine in stove foundries recently the company will devote itself to the equipping of machines for work in these lines and will make a study of molding machine practice in general. Mr. Gobeille's achievements and long experience in pattern making are well known, as is his acquaintance in particular with stove design and the operation of molding machines in the stove foundry. At the start 20 men will be employed and facilities are provided for a considerable increase in this number.

Annual Convention of Manning, Maxwell & Moore, Inc.

About 70 men attended the annual convention of the officers, department managers, branch managers and salesmen of Manning, Maxwell & Moore, Inc., which was held at the Hotel Astor, New York, January 8 and 9. The attendance included representatives from foreign countries, who contributed to the interests of the sessions with accounts of sales, methods and results in distant lands. There were also in attendance branch managers and salesmen from Chicago, Pittsburgh, St. Louis, Cleveland, Syracuse, Detroit, Philadelphia, Atlanta and Boston. The manufacturing end was represented by the works managers of the following subsidiary companies: Shaw Electric Crane Company, Muskegon, Mich.; Ashcroft Mfg. Company and Consolidated Safety Valve Company, Bridgeport, Conn.; Hancock Inspirator Company and Hayden & Derby Mfg, Company, Boston, Mass. The various reports submitted showed that despite the recent depression a vast business had been done by the corporation in the last year.

The convention was opened by President Charles A. Moore with a fitting address commending the work of the various departments. Meetings were held Friday morning, Friday afternoon and Saturday morning, at which time there were general discussions over various questions concerning the manufacturing and selling of the company's products, and all of the sessions were open for suggestions from the different departments with a view to improving the system of the organization. The departmental policy was discussed in connection with its relation to the company's policy as outlined by President Moore. A luncheon was served in the yacht room of the hotel on Friday afternoon, and on Friday night a banquet was held at which Vice-President J. N. Derby presided. This was purely a social event, and a musical entertainment was furnished. The convention was brought to a close on Saturday morning in order to give visitors from other cities a chance to see New York and make visits among friends in the vicinity before returning to their various stations.

New Burke Products.

The cutting-off saws now being placed on the market by the Burke Machinery Company, Cleveland, Ohio, differs from the former construction in that a screw feed has been substituted for the rack and pinion feed, and a ball thrust bearing has been placed in front of the worm. These changes reduce the friction and give a much steadier feed than the one obtained before. Both of these changes also reduce the breakage of saw blades. machine is made in two sizes, 12 and 20 in. The 20-in. machine has two feeds, one for structural work, and one for solid work. For grinding or regumming any saw blades from 10 to 20 in. diameter the company is also making a saw grinder which spaces entirely from the saw teeth. Some changes have also been made in several of the milling machine attachments made by the company. These include a vertical milling attachment, index centers, and a slotting attachment.

The J. I. Case Threshing Machine Company's recent banquet at Racine, Wis., to its representatives was attended by employees of the company from every State in the Union and every Canadian province.

The Machinery Trade.

New York, January 20, 1909.

Trade with machinery houses seems to be drifting along on about the same level as that of the past few weeks, with few signs of an immediate betterment, in spite of the fact that several projects of importance have been brought forward. The slowness with which plans mature, the inactivity of the railroads and other large corporations, and the small volume of inquiries and orders have, to an extent, dispelled the optimism of many, and the opinion is becoming more general that improvement in business will be gradual and that it will be many months before a marked betterment will take place. Additional announcements of plans for new shops that will require extensive equipment are being made, one of importance being reported the past week, and at the present time there are quite a few which should be consummated by spring. There are, however, not enough of the smaller and medium sized projects to afford much encouragement. In the words of a prominent dealer, referring to the more important operations, "They keep coming, but nothing comes." Although business the past week was rather light, a good sized order for cranes was placed by the New York order for cranes was placed by the New York Central Railroad.

Leather belting manufacturers have raised prices on the standard lines of belting from 10 to 15 per cent. vance, it is explained, is made necessary because of the in-creased price of hides. It is said in some quarters that many leather belting houses found little or no profit in their recent sales at the prices which were in existence until a week or so ago.

The first of a series of matinee smokers arranged by the Machinery Club was held on Saturday afternoon, Jan-uary 16, in the commodious quarters of the club in the Hudson Terminal Building, 50 Church street, New York, when about 2000 men gathered to witness an excellent vaudeville programme, which included a talk by Homer Davenport, the cartoonist, in which he related his experience in securing the first blooded Arabian horses to be imported to this country. The machinery and metal trades and allied industries were well represented at the gathering, many members of the club coming from out of town cities to attend the affair. A list of those present would include a large majority of the representative men in the trade in the large majority of the representative men in the trade in the vicinity of New York, and many prominent machinery and metal men from out of town. The affair proved a success in every way and afforded the trade in general an excellent opportunity to meet socially. All of the officers and standing committees of the club acted as a Reception Committee. The Entertainment Committee was composed as follows: Clayton W. Old, chairman; C. E. Carpenter, H. N. Covelle, Hermann Fromme, L. P. Goodspeed, F. W. Jaeger, J. E. McClintock, Alexander Potter, M. J. Sheridan, Coleman A. Terry, R. L. Windholtz and L. N. Waite.

In a recent communication from Alvin M. Smith of the Smith-Courtney Company, Richmond, Va., who is the secretary-treasurer of the Southern Supply & Machinery Dealers' Association, he says: "We feel that our association has made great headway during the past year, as we have increased our membership considerably and have received most

creased our membership considerably and have received most favorable consideration at the hands of the manufacturers and can boast with pride that with one or two exceptions the maintenance of prices and cordial trade relations among our members have been maintained during the recent panic. The fresh impetus which has been given to business with the opening of the new year sees our organization more compact and stronger than ever before. Our officers and members are working as a unit to bring about the most cordial and pleasant relations between our members and the manufac-turers and are working strictly on business lines for the promotion of the best interests of the supply and machinery

Delaware & Hudson Railroad's Machinery Requirements.

Machinery houses have received requests for catalogues and other data on machine tools from the Delaware & Hudson Railroad, which is preparing to buy considerable new mechanical equipment for a new shop it is to erect at Green Island, near Troy, N. Y. It is understood that the road Island, near Troy, N. Y. It is understood that the road is getting the information to enable it to prepare a list of its requirements for the new shop, and it is likely that the trade will be asked before long to submit figures on a substantial lot of machine tools. The requests come from the master mechanic at the Green Island shops.

The New York Central Railroad has at last placed the order for the five traveling cranes, bids upon which were submitted many months ago. About every important crane manufacturer put in bids for the cranes, and much interest

manufacturer put in bids for the cranes, and much interest was taken in the matter because the cranes are to be of the alternating current type, which is not the common type of crane used. The general practice has been to use cranes operated by direct current, and there is much speculation

as to why the road wants to use alternating current cranes The order, which was placed with the Niles-Bement-Pond Company, New York, amounts to about \$40,000. The cranes are intended for installation in the new shops at West

Albany, N. Y.

In view of the few new projects brought forward by the railroads, the trade is following closely the new shops to be erected at Erwin, Tenn., by the Carolina, Clinchfield & Ohio Railroad, whose headquarters are in Johnson City, Tenn., and which were outlined in these columns a few weeks ago. is stated that of the \$200,000 to be expended for the construction and equipment of the shops about \$105,000 will be used for the erection of the various buildings and about \$86,-000 for the purchase of tools and general shop equipment. It is understood that a new coaling station is also to be estab-

The recently organized Goldschmidt Detinning Company, 60 Wall street, New York, is now arranging to build a detin-ning plant on Staten Island, New York, near Carteret, N. J., which will have an approximate capacity of 40,000 tons of tin scrap a year. Plans for the plant are already under way, and as yet no machinery has been purchased. While the general machinery trade may not benefit greatly from this enterprise, manufacturers of power equipment, cranes, conveying machinery, scrap presses, &c., will no doubt hear of some good requirements, and later on the company proposes to erect a plant of the same size somewhere in the West. The erect a plant of the same size somewhere in the West. The property on Staten Island Sound acquired by the company is about 10 acres in extent, and is located on the water front. The company has a capital of \$3,000,000, and the permanent organization was perfected during the week by the election of the following officers: President. William T. Graham; vice-president and general manager, Dr. F. H. Hirschland; treasurer, R. H. Ismon, and secretary, Hubert E. Rogers. The directors include E. L. Marston, Edward L. Ballard, W. T. Graham, F. S. Wheeler, L. A. Wells, Dr. F. H. Hirschland, E. Stutz, Hubert E. Rogers and Dr. Karl Goldschmidt. Messrs. Graham. Wheeler and Ismon are connected with the Messrs. Graham, Wheeler and Ismon are connected with the American Can Company, the first named being president of that corporation, and arrangements have been made by which all the tin scrap produced by the American Can Company will be worked over by the new company. It is understood that work on the plans is already under way, and it will not be

the T. W. Curley Mfg. Company, Meyersdale, Pa., whose plant was recently destroyed by fire, will rebuild as soon as possible and install an entire new equipment. The company would be pleased to receive quotations on four lathes, shaper,

planer, small tools, &c.

The Gibbs Gas Engine Company, Peters Building, Atlanta, Ga., recently organized with a capital stock of \$100,000, fully paid in, will manufacture the Gibbs two-cycle gas engine which, it is said, by repeated tests made by a disinterested expert will produce considerable more representations. power than the standard two-cycle engine and consume less fuel. The company will also manufacture a soft coal gas fuel. The company will also manufacture a soft coal gas producer in units from 15 to 3000 hp., which is said to have many advantages. Until the plant in Atlanta can be built and equipped the engines will be made in Philadelphia or some other Eastern plant. The company intends to establish a branch plant at Jacksonville, Fla., for the manufacture of marine engines and will purchase for that plant such machinery as is suited to making two-cycle engines. Charlton G. Ogburn is president; Gabriel R. Solomon, vice-president; George W. Gibbs, Jr., engineer in charge of the engine department, and Gustaf Arkerlund, engineer in charge engine department, and Gustaf Arkerlund, engineer in charge of the producer department.

The new \$500,000 Technical High School, which is to be erected by the city of Buffalo, N. Y., in charge of Francis G. Ward, Commissioner of Public Works, City Hall Building, is to be equipped with heating, power and ventilating plant, steam laboratory, vapor engineering laboratory, forge, foundry, machine shop, plumbing room, steam fitting room, metal working room and pattern making rooms. Each separate shop will be equipped with a modern line of tools and machinery and equipped to turn out work in the same man-ner as an operating factory. Bids covering machinery and equipment will not be invited until building construction is

under way.

The Automatic Transportation Company, W. C. Carr, president, Lewis Block, Buffalo, N. Y., is having plans prepared for a manufacturing plant which it will erect at Main street and Hertel avenue. The plant will consist of eight buildings in all, including brass and iron foundry, machine shop erecting shop and assembling building, woodworking shop, erecting shop and assembling building, woodworking and pattern shop, warehouses and office building. The only building to be erected at the present time will be a two-story 50×150 ft. brick and steel machine shop for which bids will be invited after February 1. The list of machinery to be purchased for this building includes four or five planers of different sizes, 10 to 12 drills, various styles and sizes; seven or eight lathes, two milling machines, special designed stamping machinery and various other smaller tools.

All machinery is to be direct motor driven.

The Spooner-Matthewson Company, 90 West street, New York, as agent for the Ridgway Dynamo & Engine Company, has received an order from Phelps, Dodge & Co., for a 110-kw. a. c. generator for direct connection to a compound engine, the machine to be delivered to the Copper Queen

Consolidated Mining Company.

Improvements to the municipal electric light plant at Ga., have been recommended, as follows: stallation of a 350-hp. engine, direct connected to 240-kw. generator, and a 125-hp. boiler, with stack. J. W. Hamresigned as superintendent and has been suc-

mond has resigned as su ceeded by W. C. Hartman.

Business Changes.

The Southern branch of the American Steam Gauge & Valve Mfg. Company, for several years located in the Equitable Building, Atlanta, Ga., has removed its office to 524-525 Candler Building, that city.

Chicago Machinery Market.

CHICAGO, ILL., January 19, 1909.

Trade in machinery lines has drifted along through the first fortnight of the new year without developing anything of eventful interest. In this respect the experience is so like that of many such periods in the past year as to excite no comment, were it not, for the widely entertained hope that the beginning of 1909 would work a new order of things marketwise. Sober reflection, however, makes it apparent that the rise to a higher plane of industrial activity will not follow an evenly projected angle from any predetermined point, but will probably ascend in a broken line, whose fluctuations will point the ups and downs of the way. market just now is at a low point of the curve, and business is uniformly quiet. Sales are light and include few purchases of large equipment of any kind. Of the orders for machine tools entered in the past week by machinery houses, the greater part were for single tools, and the inquiries coming in are of like character.

Quite a proportion of the buyers in the market are seeksecond-hand tools, but there is not a large assortment hoose from. Stocks of second-hand machine tools are to choose from. unusually low, and dealers are finding it difficult to replenish them on account of the relatively high prices asked for good second-hand machines. The equipment of a small shop recently sold in this city at receivers' sale brought exceptionally good prices for all desirable tools. Dealers who have canvassed the Eastern markets for second-hand machines have succeeded in making but few purchases, for the reason that salable equipment was held at figures too high to admit of an adequate margin of profit for rehandling. Possibly this condition is in a large measure due to the greater discrimination of users whose standards of excellence have doubtless been raised in ratio corresponding with that of improvement in design and construction, which in recent years has been most marked and rapid. It is certainly true that many tools now being consigned to the scrap heap as unfit for further service, would not many years ago have been classed as salable second-hand machinery. In this con-nection it is also observed that as a rule the equipment thrown on the market by Western shops usually contain a less percentage of obsolete tools than those coming from the older Eastern shops. This is perhaps but a natural result of the later establishment of the former, and while numerous exceptions may be pointed out, it is to be expected that the newer industries would be more up to date in their equipthan the older ones.

ment than the older ones.

The Plumbers Woodwork Company, Algoma, Wis., manufacturer of tanks, closets, bath seats, &c., has completed arrangements for the manufacture of plumbers' brass goods, which department it is expected will be in operation within The finishing and nickel plating plant will be installed in the present plant, but a new foundry building is being erected in which the castings will be made. The machinery for the plant has nearly all been purchased, with the exception of the equipment required for the nickel plating department, on which the company would be pleased to have quotations from manufacturers. Some additional lathes have quotations from manufacturers. Some additional lathes and machine tools will probably be purchased in the very near future. Ingot brass and brass and copper rods will be used in the production of the new line, on which price-lists and quotations from manufacturers of such material are

desired.

The Western Chemical Reduction Company, Omaha, Neb., having purchased several acres of land in East Omaha adjoining its plant, will enlarge the works by the construction of additional buildings. Work on these extensions will be begun at once and new machinery will be installed.

The Southwestern Iron Works, Wellington, Kan., is establishing a foundry for the manufacture of sash weights, post mauls and hitching weights, &c., and expects to have the plant ready for operation by February 1. The main build-

plant ready for operation by February 1. The main building will be 40 x 75 ft., the foundry equipment for which has already been purchased. The company will, however, be in the market for additional machinery, which will be purchased about March 1, and in the meantime would be

pleased to receive catalogues from dealers and manufacturers

of machinery.
Improvements involving an expenditure of \$5000 for an addition to its present water works system are being planned

by the Home Telephone & Electric Company, Conway Springs, Kan. E. J. Frantz is general manager.

Through the sale of bonds a fund of \$15,000 has been provided by the city of Terrell, Texas, for the erection of an electric light plant, which will be run in connection with the present water works system. For the equipment of the new plant there will be required a 100-kw. 60-cycle 2300-volt generator, Corliss engine, boiler, 10 to 100 light capacity transformers and 25 arc lamps. Bids for this equipment will be asked for within a week or two. W. C. Drake is superintendent.

Arrangements are being made by the city of Bellevue, Iowa, for the reconstruction of its present pumping plant, and to this end bids will be received until January 27 for the following machinery: One suction producer gas engine, 85 hp.; one suction gas producer, either anthracite or bituminous, of like capacity; one 60-cycle 60-kw. 1100-volt three-phase dynamo, and a direct connected horizontal centrifugal pump with capacity of 250 gallons per minute against a total head of 240 to 260 ft.

Cincinnati Machinery Market.

CINCINNATI, OHIO, January 19, 1909.

Somewhat complex is the situation in this market; that is, it is difficult to submit a fair and comprehensive opinion, for the trade is so diversely constituted. With the tool makers as a class, it is proper to say that the new year opening has not approached its expected and hoped for standard-orders have not come out in the volume expected or as fcreshadowed by the incipient November and December boom. But manufacturers of machinery designed to shape and form sheet metals, such as heavy punches and shears, gate shears, bending rolls, corrugating presses and the like, have a great deal of work and shipments are increasing steadily. Optimistic also are the returns from the Central States builders of steam shovels, dredges, ballast unload-

ers, &c.
The following statement by Secretary and Sales Manager A. E. Cheney of the Marion Steam Shovel Company is about representative of conditions in this section: "We are running full time now, 60 hr. per week, have taken on between 400 and 500 men recently, and are still taking them on, and with this increase we believe we will be behind our orders within 60 days. We are adding largely to our plant. We have an open hearth steel foundry just about ready to begin operations, and we are building several other large additions operations, and we are building several other large additions to our plant. In almost every direction there is a better feeling, money seems to be easy and plenty, and much work is in prospect. It is our impression that 1909 will be a fairly good year." He corrects an impression given out by the daily press that the new orders received are for Government use at Panama, only a few scattering orders being for the Panama Canal.

Cincinnati Punch & Shear Company is running its plant 70 hr. per week, with a full complement of men, and has orders ahead received since the first of the year for 75 has orders ahead received since the first of the year for 75 days' work, or, in other words, enough to keep the forces busy until the middle of March. One large shear goes to the Aluminum Company of America at New Kensington, Pa., to be used for shearing extra heavy plates. The machine weighs about 40,000 lb. Another large tool, a gate shear, is to be shipped to Los Angeles, Cal. A large bending roll goes to Australia. This week the company will ship a heavy double punch to South America.

The J. M. Robinson Mfg. Company, manufacturer of core

The J. M. Robinson Mfg. Company, manufacturer of corrugating machinery, bending rolls, cornice brakes, &c., is operating its plant full time, full force, but principally on cornice brakes, for which there has been a steady demand. A recent shipment was a large 10-ft. corrugating press to Guelph, Ont. The volume of inquiries is reported as in-Guelph, Ont. The volume of inquiries is reported as in-creasing, but unusual conditions are imposed and customers

seem to be, as a rule, more exacting in their specifications.

Shapers are having a fair inquiry and some rather good sales are reported within the past half month. One local concern making a specialty of this tool announces that the orders so far this month about equal those received during the entire year of 1908, from which he argues that dealers who practically bought nothing for the stock floors during ear are taking heart and beginning to stock up. spondence from dealers took an optimistic trend immediately after election and the results are just now beginning to show. This manufacturer is making some special improvements in his 16, 20 and 24 in. back gear machines. Manufacturers of the smaller and medium size lathes are beginning to get some good inquiries, and one of them says that orders have

some good inquiries, and one of them says that orders have been coming in steadily for the past two months. Tool manufacturers here have been greatly interested in the list of the Union Pacific Railroad, which is said to have gone, the greater part of it, to a large tool works company

belonging in this field, but not directly in the Cincinnati territory. Some strictly local establishments, however, secured some of the business in the list of the McKeen Motor Car Company, which is closely allied through officials with the Union Pacific interests at Omaha. In this latter list the Cincinnati Machine Tool Company profited to the extent of two 36-ft. upright motor driven drills. Some inquiries for this the next to largest size made by this specialist and other scattering sales lead this company to believe that better conditions are working out.

The Ft. Wayne Foundry & Machine Company is enjoying a run of orders on its fire escapes, having recently had commissions for its product to be placed on 21 structures in Ft.

Wayne alone.

The Empire Iron & Steel Company, Niles, Ohio, is announced to begin the erection of two additional hot mills. The contract for the structural work has been let to the Mineral Ridge Mfg. Company.

The new machine shop and the pattern shop begun by the Buckeye Steel Castings Company, Columbus, during the summer are completed and are now being fitted up. Contracts are being arranged for the two other large buildings of steel construction. The company is operating three of its of steel construction. The company is operating three of its furnaces and expects, if business justifies, to put the fourth one in before February 1.

Several changes have been made in the plant of the Central Foundry Company at Vincennes, Ind., which has enjoyed a run of prosperity during the recent dull period.

Cleveland Machinery Market.

CLEVELAND, OHIO, January 19, 1909.

Inquiries are still fairly plentiful, but buyers are slow in placing orders. There is considerable complaint among manufacturers that collections are bad, and the delay in placing orders for new equipment is partially attributed to this fact. While the inquiries indicate that many manufacturing concerns have under consideration the purchase of some new machinery, they are showing a disposition to withhold orders until they see that they will soon need the additional equipment. Orders received during the week were mostly for single tools. No inquiries are as yet being received from railroads for tools and machinery houses are disappointed in the delay in getting business from this source. The railroad shops, with one exception, have added practically no new machinery equipment the past year.

There is a fair demand for second-hand tools. As the supply is not large dealers are not having trouble in keeping

ir second-hand stock moving freely.

The fifth annual convention of the National Cement ers' Association was held in this city during the past Users' week, being the most successful one held by the association. In connection with the convention was a large exhibit of cement products, machinery, &c. In view of the increasing use of cement for building purposes builders of concrete mixers and cement block making machines expect that the present year will be a very prosperous one with them.

In the foundry trade there is some improvement in the demand for iron castings. During the week a number of consumers made contracts for their requirements for the year. The demand for steel castings shows a slight improve-

ment

The Taplin-Rice-Clerkin Company, Akron, Ohio, builder of furnaces, stoves and ranges, is having plans prepared for the erection of an addition to its plant, on which work will be started soon. Owing to the increase of business the capacity of the plant is found to be inadequate. The company reports that it now here enough orders on hand to be in reports that it now has enough orders on hand to keep its plant running six months. At the recent annual meeting the following officers were elected for the ensuing year: William Clerkin, president and general manager; C. B. Raymond, vice-president; J. H. Miller, secretary, and Edward Crow,

The Cleveland office of the Terry Steam Turbine Company has just received an order from the B. F. Goodrich Company, Akron, Ohio, for a 100-kw. turbo-generator. This is the second order received from the Goodrich Company, one having recently been secured for a similar unit for a pump. The Terry Company reports a good volume of inquiries for direct connected generators and turbine pumps for manufacturing plants.

Orders have improved materially with the Transue & Williams Company, Alliance, Ohio, maker of drop forgings, and it will increase the capacity of its plant, having just placed an order for three steam hammers and three pre The Oscar Felt Paper Company, Kalamazoo, M

The Oscar Felt Paper Company, Kalamazoo, Mich., which is building a new plant at White Pigeon, Mich., has an inquiry out for machine tool equipment for its new plant. The list includes a 36-in. lathe, planer, milling machine, two drill presses and a large pipe machine.

The new plant of the Ford Motor Company, Detroit, Mich., is nearing completion, and it is expected that the company will need some additional machinery equipment when it occupies its new quarters.

when it occupies its new quarters.

The Cantleak Metal Valve Company, Cleveland, has been incorporated, with a capitalization of \$10,000, by W. B. Burke, L. H. Heister, E. J. Anderson, Blake C. Cook and Barnum.

The Ohio Ceramic Engineering Company, Cleveland, reports considerable improvement in inquiries for concrete mixers and industrial cars, and that the outlook for a good volume of business during the year is satisfactory.

The village of Put-in-Bay, Ohio, at a special election, has decided to install a new water works system.

The Hill Clutch Company, Cleveland, reports an improvement in the volume of orders and inquiries for power trans-

ment in the volume of orders and inquiries for power transmission machinery and iron castings.

New England Machinery Market.

Boston, Mass., January 19, 1909.

A few instances of good sized purchases of machine tools have enlivened the market, including one lot of 25 milling machines, the contracts for which are about to be awarded, and a miscellaneous lot of machinery for one of the large mills. It is reported that the New York, New Haven & Hartford Railroad is considering the purchase of some tools for the boiler department of its repair shops, at Readville, Mass., and possibly some other machinery, and the new shops which it is proposed to build near Waterbury will require a long list of tools, if the report of the importance of the plant is not magnified. The textile machinery people continue in the market for a machine here and there, and the textile mills themselves are doing some buying, one lathe builder stating that a large percentage of his present business is coming from this source. The demand as experienced by the dealers has not reached the November level and is scarcely keeping up with December. There is a steady but by no means normal business.

It is a significant and promising fact that a very large percentage of New England manufacturers have weathered the year of depression without serious impairment of finanthe year of depression without serious impairment of financial resources, and will consequently not be handicapped during the period of recuperation as they and their predecessors have been after similar experiences in the past. Credits have not been injured as a rule. Of course there are numerous cases where business has been conducted at a loss. Manufacturers whose books for 1908 showed that expenses did not exceed receipts are very well satisfied. When in the fall of 1907 the crash came practically all established plants had been making money rapidly and had laid by a goodly balance as a reserve fund. Their credits with the banks had been established on a substantial footing, and as soon as been established on a substantial footing, and as soon as money became easy they were able to obtain accommodation in the way of loans when such action became necessary. The experience of the banking institutions has been that paper has been met promptly, all things considered. When a manufacturer meets his banking obligations when they are due in dull times he has added to the strength of his credit, and there are many cases where this has happened.

Word comes from Waterbury, Conn., that preliminary work is being done for new repair shops for the New York, New Haven & Hartford Railroad. It is believed in Waterbury that this is the beginning of the Consolidated's plan to establish great shops which will be to the western part of its system what the works at Readville, Mass, are to the eastern lines. The company has been making very important improvements to its western roads, notably those which enter Marerbury, and it is, of course, quite natural that modern shops should be created in that territory. Those at New Haven are old. It is believed that much of the work now done there will be transferred to Meriden Junction. It is stated that the new shops will be of sufficient size to require the employment of about 500 men in the beginning, and

that they will be completed by April 1.

that they will be completed by April 1.

A variety of experience is reported by the machine tool builders. Generally speaking, few manufacturers of the standard tools are very busy. There is an occasional exception, one such being the Henry & Wright Mfg. Company. Hartford, Conn., builder of high speed drills. The usual experience is that a slump is in progress as compared to the beginning of January, and notably as compared with November, when a smart spurt of business was felt. New England men who are just back from the Middle West state. England men who are just back from the Middle West state that the same condition exists among the machine tool builders of that section. Dealers are placing some stock orders, but they are not large usually. The demand is orders, but they are not large usually. The demand is largely special. Builders of standard machinery receive frequent requests for figures on adaptations of their tools, and the orders resulting form an important part of the work going through some of the shops. Establishments where special machinery is the regular product are busier than those that confine themselves to the standard types. Fundamental conditions are undoubtedly stronger. facturers of machinery used in other trades than metal working are finding a ready market. Paper mill machinery, textile machinery, chair machinery and so on are in demand. One result of this is an increased business for the foundries, some of them being actually rushed with work. General manufacturing is probably holding its own, at least. The machine tool industry seems to have been hit hardest Of course, a reaction will follow the slowing-up

influence, and business may be expected to resume again at any time, probably better than ever.

A new Massachusetts corporation, the Wilder Industries Company, has been organized to take over five concerns, the Central Oil & Gas Stove Company and Meals Printing Company, Gardner, Mass.; Boynton & Plummer, Inc., Worcester, Mass.; the E. F. Hodgson Company, Dover, Mass., and Florence Company, Florence, Mass. The capital stock of the company is \$335,000, divided between preferred and common shares. William H. Wilder, Gardner, is the president: Solon Wilder, Gardner, vice-president: Harvey V. common shares. William H. Wilder, Gardner, is the president; Solon Wilder, Gardner, vice-president; Harvey N. Brooks, Malden, Mass., treasurer; the directorate consisting of these gentlemen and Ernest F. Hodgson, Dover; William J. H. Nourse, Worcester, Mass., and Paul Wilder, Gardner. The main office of the company will be at 116-118 Washington street, Boston, and there will be a branch office at Gard-The corporation will act as a holding company for the five enterprises, control of which it assumes, the purpos being a concentration of resources, which may resolve itself into actual consolidation where it is feasible to do so. The Central Oil & Gas Stove Company and the Florence Company manufacture stoves; the E. F. Hodgson Company, portable houses, and Boynton & Plummer, Inc., blacksmiths' machinery and tools, while the Meals Printing Com-pany does a general printing business. The plans do not nclude the removal of the Boynton & Plummer shop from

William J. H. Nourse will be the manager of the business of Boynton & Plummer, Inc., Worcester, Mass., beginning his duties February 1. Mr. Nourse has been the manager of the Bradstreet Company's Worcester office for a number of

Naval Appropriation bill contains the items of \$100,000 for machinery and tools for the torpedo factory, Newport, R. I., and \$5300 for the conversion of the powder factory building at the same station into a brass foundry.

The market will profit by the fire which burned up a number of Boston garages and automobile warerooms Sunday, entailing the loss of something over 300 automobiles and the anumber of repair shops. The loss will have its effect upon the automobile industry, as the owners will hasten to place orders for new cars. The loss in all cases was total.

The F. R. Patch Mfg. Company, Rutland, Vt., manufacturer of stone and marble working machinery, did quite a satisfactory business during 1908, not being compelled to reduce the bourg of working force, exempting three or force.

duce the hours of working force, excepting three or four weeks when an hour was taken from the day's schedule. At the present time there is a full complement of men in the shops, which are running full time with a satisfactory num-ber of orders on hand. This compny is making a specialty of granite working machines, such as lathes, polishing wheels and derricks with steel mast and boom. One of the type was recently furnished for the Pigeon Hill Granite Company, Rockport, Mass., having 70 tons capacity, with mast 110 ft. and boom 90-ft. long.

The Lake Torpedo Boat Company, Bridgeport, Conn., in corroborating the announcement of the purchase of a harbor front property at the foot of Seaview avenue, states that it is proposed to limit immediate building to an office building and a machine shop for experimental work. The shipyard will be continued for repair work and some special machinery used in the construction of the company's submarine boats will be built there. The company states that it has no intention of going into the building of airships, as reported, but will confine itself to the construction of submarine torsedo. will confine itself to the construction of submarine torpedo

boats

The Skinner Chuck Company, New Britain, Conn., has purchased a tract of land adjoining its property. The front-age on the railroad is increased and additional side track facilities are obtained. This land in connection with properties purchased during the past two years gives ample room for increasing largely the present plant, and, if desired later, to add a foundry for making the company's own castings. It is not planned to erect new buildings in the immediate future.

The Sullivan Machinery Company, Claremont, N. H., manufacturer of mining and quarrying machinery, has increased its running time from 45 to 50 hr. a week, which is within 5 hr. of full time under the regular schedule. The ompany states that business conditions have improved since November and that a fairly good year is expected.

The French Mfg. Company, Waterbury, Conn., manufacone-story addition to its works, 70 x S0 ft., the purpose being to increase capacity for the manufacture of small sizes and thin gauges of tubing. The necessary equipment has been arranged for.

A mechanical and electrical exposition will be held in Mechanics' Hall, Worcester, Mass., March 27 to April 3, inclusive, under the auspices of the Worcester County Mechanics' Association, the membership of which includes most of the important industries of the city and vicinity. Campbell, an experienced manager of expositions, will be in

It is proposed to use Mechanics' Hall for the exhibition of machinery in operation manufacturing goods under commercial conditions while Washburn Hall in the same building will be devoted to the electrical department. primary purpose is to bring together the widely diversified industries of central Massachusetts, while at the same time it is probable that manufacturers from more distant points will be represented. Preliminary arrangements are already

under way.

The Almy-Cory Company, 79 Sabin street, Providence, R. I., has been organized under Rhode Island laws, with capital stock of \$75,000, to do business as smelters, refiners and assayers. William F. Almy, Cranston, R. I., is president, and Alexander H. Cory, Jr., Providence, treasurer.

The Washburn Shops of the Worcester Polytechnic Institute, Worcester, Mass., are bringing out a new speed lather than the provided of the street of the s

stitute, Worcester, Mass., are bringing out a new speed latue in which is embodied a friction drive similar to that of the high speed drill which was described in *The Iron Age* of April 2 and May 7, 1908, the latter as a motor drive machine. The plant of the Record Foundry & Machine Company, Livermore Falls, Maine, was damaged to the extent of \$7000 January 12. The company states that it will be able to resume business again in two weeks. Nothing new will be sume business again in two weeks. Nothing new will be purchased for the present, as things will be patched up to go through the cold weather. The company does a general foundry and machinist business.

The Sessions Clock Company, Forestville, Conn., has creased its capital stock from \$300,000 to \$400,000. The company states that it is not planning any expansion at present. The daily papers have published an account of ex-

tensive building operations.

Philadelphia Machinery Market.

PHILADELPHIA, PA., January 19, 1909.

While the past week's demand for machine tools has been of an irregular nature, the volume of business seems to be a shade better. No particularly large buying is to be noted, but the usual individual purchases have been more numerous. Quite a number of orders on which inquiries were made prior to the first of the year, and which were held up pending the balancing of yearly accounts have been placed, but conditions generally hardly appear in shape for any marked resumption in buying. The railroads still refrain from buying; in fact, those centering in this locality are hardly expected to make any notable purchases in the first half of the year, particularly if the general business situation does not show a material improvement. While several new propositions are being considered, there is a disposition to hold matters in abeyance pending the revision of the tar-

Manufacturers generally report business practically unchanged; if anything, the number of orders taken recently shows a slight decline, and even though there has been amount of inquiry in some directions, actual orders develop but slowly. Tool builders have not gained much on production; current orders can largely be filled from stocks on hand, and there is no disposition to rush production beyond demand. Sales during the week have been almost entirely single tool propositions of a diversified character, although little indeed has been done in tools of the larger and heavier

The export trade is quiet; the demand drags, and even those transacting an established line of trade abroad report business very irregular.

The second-hand machinery market has not been active; there is a scattered demand for tools of the medium and smaller class, but the volume of business transacted has been comparatively light. Second-hand boilers and engines have not been in good demand, although the call for new equipment, particularly for power plant installations, has been more active. Several large propositions, including the Curtis Publishing Company, are expected to be ready for proposals in a short time, and this branch of the trade particularly has a beathing experience. ticularly has a healthier appearance.

The foundry trade continues rather inactive. The demand since the first of the year has not shown the improvement anticipated. Neither gray iron nor steel casting plants have any heavy tonnage of business on hand for extended delivery, the bulk of the orders being of a prompt nature. The Bonney Vise & Tool Company, now located at

Thirtieth and Chestnut streets, will remove about February 1 to its new plant, at Tillman and Meadow streets, Allentown, Pa., where it is now installing power equipment, both steam and electric. No additional machinery will be required, as that in use at present will be moved to the new

location, which comprises two and a half acres of ground on the Lehigh Valley Railroad, on which are erected a number of buildings, specially adapted to the purpose.

The Department of Docks and Wharves, Philadelphia, will receive bids until January 25 for general repairs to the Chestnut street pier. Proposals are to be for all materials cooks appliances and labor processory for the work. Species Chestnut street pier. Proposals are to be for all matools, appliances and labor necessary for the work.

fications may be obtained from the office of the director,

John C. Grady, 348 Bourse Building.

The Realty Creek Supply Company, Malvern, Pa., will extend its gas supply line from that point to Frazer, Pa., and will install a producer gas plant and additional generators.
T. P. Conard, Harrison Building, reports a fair demand

for boilers and general equipment, particularly for Maxim water tube boilers, of which an installation of 1100 hp. has been sold to one party and 300 hp. to another.

Dodge & Day will act as constructing engineers for the erection on one of the largest cableway systems yet built. This will be in connection with the recent order received by the Lidgerwood Mfg. Company, New York, for use with work on the Gatun Dam, in connection with the Panama Canal. The cableway will have a span of 800 ft., supported on steel towers, and will be used to handle materials for concrete work. Dodge & Day report conditions generally to concrete work. Dodge & Day report conditions generally to be improving, although new work is still developing slowly. The E. H. Mumford Company, manufacturer of foundry

molding machines, reports the past December as the best shipping month of the year. The molding machine field is broadening steadily, particularly in the stove and heavy steel casting trade. Quite a large volume of business is under consideration. Recent orders received by this company include a sand mixing and rubbing mil, jolt ramming ma-chines for steel foundries and a number of the new No. 10 Mumford squeezers for light work in malleable iron foun-

The Royersford Foundry & Machine Company, Royers ford, Pa., reports but a light demand for heavy punch and shearing machinery in the past few months. In power transmission equipment there has been quite a material bet In power terment. A fairly good volume of business is in sight, but orders develop rather slowly. The company recently shipped one of its No. 1 double punch and shears to the Philadelphia Textile Machinery Company, Philadelphia.

Government Purchases.

Washington, D. C., January 19, 1909.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until January 26 for three Washington, will receive bids until January 26 for three motors for the Washington Navy Yord; universal grinder, bench lathe, three engine lathes, grinding and polishing machine, milling machine, electric motor, two drill presses, shaper, Philadelphia Navy Yard; February 9, air compressor and three engine lathes, Washington Navy Yard; complete forging equipment, Mare Island Navy Yard; steering engine, Brooklyn Navy Yard; locomotive jib crane, Charleston Navy Yard; two boilers, naval proving station, Indian Head, Md.; February 23, flat turret lathe and milling machine, Puget Saund Navy Yard. Sound Navy Yard.

The Isthmian Canal Commission will receive bids until February 1, Circular No. 488, for electric motors, and until February 8, Circular No. 490, lead melting furnace, pipe

derrick, pipe cutting machine, &c.

The Quartermaster, Key West, Fla., will receive bids until February 5 for a condenser, feed water heater, &c., for the pumping and distilling plant at the barracks.

The following bids were opened January 12 for machinery for the navy yards:

161. Standard Railway Equipment Company, St. Louis, Mo., \$420.

Class 134.—Three pneumatic drilling machines—Bidder 37, Chicago Pneumatic Tool Company, New York, \$149.30; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$169.25; 161, Standard Railway Equipment Company, St. Louis, Mo., \$225.

Class 135.—Seventeen pneumatic drilling machines—Bidder 37, Chicago Pneumatic Tool Company, New York, \$828.20; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$952.65.

Class 136.—Seven pneumatic drilling machines—Bidder 37, Chicago Pneumatic Tool Company, New York, \$338.60; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$402.35; 161, Standard Railway Equipment Company, St. Louis, Mo., \$490.

Class 137.—Thirty-six pneumatic drilling machines—Bidder 37, Chicago Pneumatic Tool Company, New York \$1549; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$1777.15.

Class 138.—Thirty-six pneumatic drilling machines—Bidder

37, Chicago Pneumatic Tool Company, New York, \$1402; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$1663.

Class 139.—Seventy-five pneumatic drilling machines.—Bidder 37, Chicago Pneumatic Tool Company, New York, \$2671; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$3144.23.

Class 140.—Thirty pneumatic drilling machines.—Bidder 37, Chicago Pneumatic Tool Company, New York, \$721.45; 80, Independent Pneumatic Tool Company, New York, \$721.45; 80, Independent Pneumatic Tool Company, New York, \$411.80; 80, Independent Pneumatic Tool Company, New York, \$411.80; 80, Independent Pneumatic Tool Company, New York, \$512; 80, Independent Pneumatic Tool Company, New York, \$512; 80, Independent Pneumatic Tool Company, New York, \$512; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$598.12; 80, Independent Pneumatic Tool Company, New York, \$487.60; 80, Independent Pneumatic Tool Company, New York, \$398; 80, Independent Pneumatic Tool Company, St. Louis, Mo., \$434.50.

Class 145.—Two pneumatic wood boring machines—Bidder 37, Chicago Pneumatic Tool Company, New York, \$308; 80, Independent Pneumatic Tool Company, St. Louis, Mo., \$434.50.

Class 145.—Two pneumatic wood boring machines—Bidder 37, Chicago Pneumatic Tool Company, New York, \$300, \$400, \$

Mo., \$392.
Class 151.—Twenty-one pneumatic hammers with spare parts—Bidder 37, Chicago Pneumatic Tool Company, New York, \$517.65; 44, Dayton Pneumatic Tool Company, Dayton, Ohio, \$525.20; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$739.55; 125, George Oldham & Sons, Frankfort, Pa., \$942.30; 136, Pittsburgh Pneumatic Company, Canton, Ohio, 111., \$739 \$942.30; \$533.21.

Class 152.—Twenty-five pneumatic hammers with spare parts.—Bidder 37, Chicago Pneumatic Tool Company, New York, \$609.65; 44, Dayton Pneumatic Tool Company, Dayton, Ohlo, \$624.45; 80, Independent Pneumatic Tool Company, Chicago, III., \$873.95; 125, George Oldham & Sons, Frankfort, Pa., \$1996; 136, Pittsburgh Pneumatic Company, Canton, Ohlo, \$62.49.

Class 153.—Two pneumatic hammers with spare parts—Bidder 37, Chicago Pneumatic Tool Company, New York, \$49.55; 44, Dayton Pneumatic Tool Company, Dayton, Ohlo, \$56.10; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$70.30; 125, George Oldham & Sons, Frankfort, Pa., \$77; 136, Pittsburgh Pneumatic Company, Canton, Ohlo, \$50.54; 161, Standard Railway Equipment Company, St. Louis, Mo., \$80.

Class 154.—One pneumatic hammer with spare parts—Bidder 37, Chicago Pneumatic Tool Company, New York, \$33.55; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$36.70; 125, George Oldham & Sons, Frankfort, Pa., \$38.50; 136, Pittsburgh Pneumatic Company, Canton, Ohlo, \$28.41; 161, Standard Railway Equipment Company, St. Louis, Mo., \$40.

Class 155.—One jamb riveter with spare parts—Bidder 37, Chicago Pneumatic Tool Company, New York, \$7.40; 161, Standard Railway Equipment Company, New York, \$7.40; 161, Standard Railway Equipment Company, New York, \$125.

Class 156.—Eight pneumatic bidder-ons with spare parts—Bidder 37, Chicago Pneumatic Tool Company, New York, \$120; 80, Independent Pneumatic Tool Company, Chicago, Ill., \$135.50; 161, Standard Railway Equipment Company, St. Louis, Mo., \$125.

Class 157.—Two spike punches — Bidder 99, Manning Max.

Class 157.—Two spike punches — Bidder 99, Manning Max.

\$135.50: 161, Standard Railway Equipment Company, Sc. Assa. Mo., \$136. Class 157.—Two spike punches — Bidder 99, Manning, Maxwell & Moore, New York, \$60: 104, Manhattan Supply Company, New York, \$57.40; 111, Montgomery & Co., New York, \$59.84; 190, Watson-Stillman Company, New York, \$62.50.

The following bids were opened on January 9 for ice making and refrigerating machinery for Culebra, P. R.:

Brunswick Refrigerating Company, New Brunswick, N. J., item 6, \$2420; 8, \$2190.
G. & W. Mfg. Company, New York, item 1, \$3213.
McCay Engineering Company, Baltimore, Md., item 6, \$2627;
8, \$250; 9, \$3237.
Frick Company, Waynesboro, Pa., item 6, \$4320; 8, \$320;
9, \$3190.
Kroeschell Bass, Vol. Mat.

8, \$3190; Kroeschell Bros. Ice Machine Company, New York, item 6, \$3490; S. \$276; 9, \$2970. Remington Machine Company, Wilmington, Del., item 6, \$2900; 8, \$300.

Under bids opened November 30, Circular No. 478, for machinery for the Isthmian Canal Commission, the Harlan & Hollingsworth Corporation, Wilmington, Del., has been awarded class 1, three Scotch marine boilers, \$6343; class

three Scotch marine boilers, \$9688.
 Under bids opened December 1 for machinery for the navy yards the National Acme Mfg. Company, Cleveland,

Ohio, has been awarded class 11, one multiple screw machine, \$2875.50.

The following awards have been made for machinery for the navy yards, bids for which were opened December 8:

Manning, Maxwell & Moore, New York, class 2, one high ed multiple drill, \$4175. Niles-Bement-Pond Company, New York, class 111, one 32-in. Niles-Bement-Pond Company, New York, class 111, one 32-in. lathe, \$2599.
Gleason Works, Rochester, N. Y., class 141, one automatic beveled gear planer, \$2750.

Under bids opened December 15 for machinery for the navy yards the Prentiss Tool & Supply Company, New York,

has been awarded class 102, one shaper, \$674.

Under bids opened December 22 for machinery for the navy yards August Mietz, New York, has been awarded class 41, two 12-hp. internal combustion kerosene engines, \$1325

Under bids opened December 29 for machinery for the navy yards the Walter H. Foster Company, New York, has been awarded class 131, one motor driven turret lathe, \$3630.

OBITUARY.

CHARLES E. WHITMAN, president of the Whitman Agricultural Company, St. Louis, Mo., died January 7, aged 72 years. He was born in 1837 at Winthrop, Maine. His father, Luther Whitman, was an inventor and large manufacturer of machinery and implements in that place, hence it will be seen that the son was reared in an implement atmosphere. On leaving home he accepted the management of the Walter A. Wood Reaping & Mowing Machine Company's branch house in Chicago, and had charge of the company's interests in the West and Southwest until he removed to St. Louis in 1870, and, with his brothers, Gustavus F. and Henry L., established the Whitman Agricultural Works at Eighth street and Clark avenue. Later this institution was reorganized and the capital increased, the name being changed to the Whitman Agricultural Company, and later the great plant was erected at 6900 South Broadway. Charles E. Whitman was the president of these corporations continuously, and largely through his energy and business ability the enterprise has grown to its present prosperous condition. He leaves a widow. His brothers, Gustavus F., Henry L. and William E., are connected with the factory in official capacities. He was a member of the Manufacturers' Association, a director in the Latin-American Club, a member of the Missouri Athletic Club and a Knight Templar.

ELIJAH S. PIERCE, inventor of various screw machines, died January 13 at the home of his son, Frank H. Pierce, in New Haven. He was born in Woodbury, Conn., and was 80 years old.

WILLIAM G. PARK, chairman of the Board of Directors of the Crucible Steel Company of America, died suddenly January 19 of apoplexy, in Pittsburgh. had been with his brother, D. E. Park, in the Mellon Bank Building during the afternoon and feeling ill went home. His death was so sudden that none of the members of his family could be summoned. Mr. Park was 59 years of age. His original connection with the steel trade was as one of the principal owners of the Park* Steel Company, operating the Black Diamond Works. That company was absorbed by the Crucible Steel Company of America. He was a director of the Mellon National Bank, Union Trust Company and the Union Savings Bank, Pittsburgh, and was a member of many clubs in New York and Pittsburgh. He leaves a widow and four children.

D. D. Pendleton, for 15 years connected with the Westinghouse Electric & Mfg. Company, has resigned and associated himself with G. W. Thompson, formerly of the engineering department of the Baltimore & Ohio Railroad, under the name of D. D. Pendleton Company, 574 Frick Building Annex, Pittsburgh, as district sales agent for manufacturers of power plant equipment. Among concerns the new company will represent are the Wheeler Condenser & Engineering Company, Carteret, N. J.; Terry Steam Turbine Company, Hartford, Conn.; American Boiler Economy Company, Philadelphia; Northern Water Softener Company, Madison, Wis., and National Steam Pump Company, Upper Sandusky, Ohio.

PERSONAL.

John Birkinbine, consulting engineer, Philadelphia, has gone to Mexico to review the exploratory work which his son, J. L. W. Birkinbine, has carried on for a year and a half for the Oaxaca Iron & Coal Company, in the State of Oaxaca, and to investigate railroad routes to make the coal and iron ore available. The exploratory work is being prosecuted by means of two diamond drills, which had to be packed on mules through the rugged mountain country of Oaxaca. Mr. Birkinbine will also look into some large hydro-electric improvements projected in the States of Oaxaca and Guerrero.

L. C. Graton of the United States Geological Survey, if he will accept, will be the statistician for the new Copper Producers' Association, which has just completed

Wm. H. Dyer has been appointed master mechanic of the Southern Locomotive & Car Mfg. Company's shop at Valdosta, Ga.

It has been known in the trade for some time that a number of changes have been contemplated in the management of the Chicago Pneumatic Tool Company, and this has been confirmed by the announcement that J. W. Duntley has handed in his resignation as president of the company to take effect February 15. W. O. Duntley, who is vice-president of the company, will succeed his brother as president, and John R. McGinley will succeed Charles M. Schwab as chairman of the Board of Directors. J. W. Duntley will take the presidency of the recently organized Duntley Mfg. Company, which will manufacture a number of specialties. The interests of the latter company will in no way conflict with the Chicago Pneumatic Tool Company.

Wm. G. Mather, president of the Cleveland-Cliffs Iron Company, Cleveland, Ohio, has been elected president of the National Commercial Bank of Cleveland. succeeding the late Joseph Colwell.

George T. Smith, heretofore vice-president of the Joseph Dixon Crucible Company, Jersey City, N. J., has been elected president, succeeding the late Edward F. C. Young. Wm. F. Corbin, counsel for the company, has been chosen vice-president.

The Perkin Medal is to be presented to Arno Behr by Prof. C. F. Chandler at the meeting of the Society of Chemical Industry, to be held at the Chemists' Club, New York, on Friday, January 22.

Joseph C. Graves, after 15 years' service with the Otis Elevator Company in various capacities, has resigned to become the vice-president of the American Elevator Company, 113-117 Cedar street, New York, manufacturing passenger and freight elevators operated by electric, hydraulic, belt or hand power.

A. L. Lovejoy, formerly with the Becker-Brainerd Milling Machine Company, has associated himself with the Pratt & Whitney Company, 111 Broadway, New York, as manager of the sales department.

W. D. Patton, Jeffersonville, Ind., has been appointed sales agent in Indiana territory by the Domhoff & Joyce Company. He had covered the same district for about 14 years for Rogers, Brown & Co.

Carl M. Hoppe, manager of sales in the Northwest for the Republic Iron & Steel Company, headquarters at St. Paul, has taken offices in the Endicott Building in that city. He has been with the company since its incorporation. He succeeded M. E. McKeen, now manager of the Cincinnati sales office, when the latter was transferred

George R. Wales, assistant general sales agent of the Washburn Wire Company. Phillipsdale, R. I., is rapidly convalescing from the two operations he has been obliged to undergo since Christmas.

The largest sale of iron ore ever made in their history was effected recently by Witherbee, Sherman & Co., Port Henry, N. Y. It was to the Bethlehem Steel Company, and deliveries extend over a number of years.

HARDWARE

N most periods of business depression a compensating feature may be found in the fact that manufacturers, freed from extreme pressure on their productive energies and facilities along regular lines, are able to give increased attention to new plans and products. They afford opportunities for initiation. Experience tends to show that times of reaction are generally periods of progress in which are made the most notable improvements both in process and in production. Such times accordingly are apparently regarded by Hardware manufacturers as particularly favorable for introducing new goods, a fact which finds an illustration in the columns of The Iron Age for the past year. During this period more new and improved articles were offered for illustration and description than ever before in the same length of time. Merchants also, both wholesale and retail, are in good times so busy taking care of their regular business that they are little disposed to stock or push new articles; in slow times, however, many of them seem to welcome the opportunity to swell their sales by attention to attractive specialties. The experience of a well-known manufacturer may be cited in this connection. At the beginning of the depression, more than a year ago, this house immediately bent all its energies toward the completion and introduction of several promising novelties. The trade was found more than ready to take an interest in the articles, with the result that while the manufacturer's regular goods participated in the general falling off his total volume of sales was fully maintained, and at the same time he strengthened his business by the addition of several new and profitable lines well established on the market.

It becomes patent in this connection that such campaigns tend to closer relations between the manufacturer and the retail trade. The habitual disinclination of jobbers to undertake the introduction of new articles is well known. They are as a rule averse to putting them in stock until a demand has been created among their customers through so-called missionary work conducted by the manufacturer. In this the jobber is not unreasonable, his business being to supply quickly and in desired quantities the goods which the retailer requires. His salesmen must see their customers frequently, and their time is too valuable to spend in the talking and demonstration necessary to secure small orders for new goods. It does not pay. Many novelties, moreover, are of problematical success, and the jobber's salesman, besides wasting his time, runs the chance of loading up his customers with dead stock, which will not increase the cordiality of their relations either with himself or with his house. There is something also in the point that new goods thus sold are less likely to succeed than if handled by the manufacturer's representative. Jobbers' salesmen lack not only time but information about the goods sufficient to admit of talking them successfully, to say nothing of posting the retailer and awakening his enthusiasm so that he will be likely to build up a trade. Samples may go in the show case only to be lost in the general display, while the goods unasked for grow shop worn on the shelves. If the retail buyer could have the articles properly presented to him by the manufacturer's salesman that he in turn could effectively present them to his customers, results might be much different.

Retailers as a rule are interested in new articles. They like to see them, know who makes them, and have the opportunity of passing on them. For the foregoing reasons, however, the suggestion, voiced by a prominent retail merchant at the recent Memphis conventions, that jobbers ought to bring them the new lines put out by manufacturers is hardly practicable, for the jobbing trade is not equipped to give the retailers such service on any extensive scale. Jobbers, on the other hand, have no ground for complaint against the manufacturers if in thus approaching the retailer with their novelties, as they are so often forced to do, direct relations are established between the makers of the goods and the retail distributers.

Condition of Trade.

Dullness incident to the year end and inventory season is still affecting the Hardware market as a whole. In the East, and particularly in the metropolitan district, inactivity is especially marked. Many salesmen have again taken up their grips and sample cases and their orders are coming in, those from the West being the most encouraging. Reports would indicate that in the majority of establishments this month's business will run from 10 to 20 per cent. ahead of January, last year, when, of course, general conditions were very unfavorable. There are no evidences, however, of a buying movement of any proportions, a fact which is causing disappointment to some, although others have consistently maintained that such a movement could not be expected until spring. With few exceptions purchases are still limited to the requirements of the immediate or at least not distant future. Deliveries are going on in season goods for which advance bookings have been fairly satisfactory. In the retail trade the advent of real winter weather has interrupted outdoor operations which until recently have been little interfered with; on the other hand it has stimulated the sale of lines now seasonable which have been unusually dull. The frequent recurrence of mild winters seems to have had some effect in reducing the stocks of winter goods purchased by the trade in the fall. The opening of the retail convention season, annually assuming greater importance for manufacturers and jobbers as well as for the retail trade, is marked by sessions held this week in Texas and on the Pacific Coast. Some associations are making an effort to stimulate interest in their gatherings on the part of manufacturers and distributers by encouraging their members to place orders during the conventions. Prices are pursuing a somewhat irregular course and cautious buyers are watching the market closely with a view to possible revisions in prices of raw material. A halting disposition is noted in Brass and Copper lines.

Chicago.

The course of trade in Hardware lines for the past week has been quite uneventful. A fair volume of business is moving and though no marked improvement is observed, it is comforting to know that the general tendencies of trade are not of an untoward character. Informal expressions from retail dealers located in various parts of the city indicate a pretty even distribution of demand, which judging from the general absence of complaint, must be reasonably active. Perhaps the most forward line, aside from Wire Goods, is Builders' Hardware. There seems to be more stock buying by jobbers than at

any time within a year, and factory order books are said to be quite well filled. The two causes chiefly responsible for this result are a healthy growth in building and an attractive level of prices. During the continuance of hand to mouth buying which prevailed through the greater part of last year, stocks in the hands of distributers became well nigh exhausted, and a large amount of goods was needed to restore them to anything like their normal volume. With the appearance of noticeable improvement, buyers began to extend their purchases to cover forward requirements, and this movement was accelerated by the belief that any future change in prices would more likely have an upward than a downward The demand for Sash Weights has also been favorably affected by the activity in building, but prices have not advanced. The order for Hardware for the new La Salle Hotel, now under construction, has not yet been placed; this is the largest contract of the kind in immediate prospect in this market, though a little later bids will be taken on requirements for the City Hall and the Blackstone Hotel, which will be of considerable size.

Philadelphia.

Supplee Hardware Company.—The first two weeks of the New Year have no doubt been a surprise to many merchants who confidently expected to have the present year make amends for the shortage of the one just passed. It seems to be a natural law that, while disaster may come in a night, it takes months, often years for recovery. A single cold night may ruin the orange crop of Florida for years to come, and in a few seconds a disaster like the Italian earthquake may overthrow the work of centuries, and recovery from such a blow will take the greater part of even as energetic a century as the twentieth to accomplish.

So, while trade has not fully recovered from its backset of last year, it is no longer in the hospital, and, were it not for the splendid record of 1907, we think most merchants would be congratulating themselves on the present conditions. It is to be expected that certain industries will hesitate, and many large orders be withheld until something definite can be known about the extent of the tariff changes. This will naturally make trade quiet in sections dependent largely on the industrial plants that rely chiefly on the railroads and allied interests for the consumption of their product.

The demand for staples seems to be about normal, and the trade supplying the farmer are buying with more freedom than they did a year ago, seeming to feel that the pitchfork has not yet been superseded, and that it will continue in steady demand, both for outside and indoor use. In this latter connection the country has been treated to another exhibition of its value in the halls of Congress, leading many of us to feel that the country would be better off with less excitement of that kind

Our suggestion to any inquiring legislator or Senator would be that if he wanted to enact legislation pleasing to every man, woman and child in the country, he would secure the passage of 1-cent letter postage, and help to defeat parcel post legislation, which would inevitably tend toward centralization, taking more or less business away from hundreds of thousands of smaller merchants, and giving it to a few large corporations already plethoric with ill-gotten gains. We think it highly important that every merchant, retail and wholesale, should make it his business to be posted on this issue, and not fail to advocate it whenever the subject is brought up.

The writer had an illustration of this in the Pullman smoker on a train in the far South. A local politician, prominent in the State agricultural work, was advocating the parcel post as a great help to farmers. After some discussion of the subject, presented from the retail dealer's side, he freely admitted that he had not thought of the effect of driving his neighbors out of business, and as a result increasing the drift of the population to the already overcrowded centers. He was for the farmer first, last and always, but he realized that the local merchant was the farmer's friend and a great convenience. We believe many advocates of the parcel post are

for it because they have never heard the other side, even imperfectly presented.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—We are glad to report that business for the new year so far has been very satisfactory indeed. While the volume of sales for January up to date is, in our opinion, hardly up to what they were before the panic, at the same time they are showing a good increase over last year.

Retail merchants are showing more inclination each week and each month to get back into the old channels and do business on a more liberal scale, and the movement of merchandise in some lines just at this time is especially heavy. Such goods as Poultry Netting, Trace Chains, Hames, Back Bands, Cotton Rope, Blind Bridles, Horse Collars, Ice Cream Freezers, Steel Goods, Fishing Tackle, &c., are being shipped out in large quantities.

We are also glad to notice the appearance of a number of new stocks in the market, Quite a number have already been sold since the holidays. This, of course, is an indication of returning good times.

Collections in some parts of the South are a little bit slow, but taken as a general average they are very good. Failures in the South this winter have been fewer than we anticipated, and prospects for a continued increase of business and better financial conditions are bright.

Cleveland.

W. BINGHAM COMPANY.—We all know that comparisons many times are odious, but it must be gratifying to us all to make a comparison of prices on many articles in the Hardware line of to-day, as compared with some years ago. We have before us a long list of articles in the Hardware line sold by a manufacturer who was doing business in Pittsburgh in 1840. Note what a wide difference in the quotations of that time and to-day:

1840.	1909.
Cross Cut Saws, foot\$0.45	\$0.30
No. 2 Common Black Shovels, dozen10.00	4.25
No. 1 Black Coal Shovels, dozen	4.00
No. 2 Black Coal Shovels, dozen	4.25
.No 3 Black Coal Shoveis, dozen	4.50
Four-prong Manure Forks, dozen	5.00
Three-tine Hay Forks, dozen 6.50	4.25
20d Nails, keg 5.75	2.10

Now what has brought about this great change? Cannot we attribute it to wise statesmanship, our protective policy and the indomitable push and energy of our American manufacturers? There would be just the same comparison on many other kinds of Hardware, and especially so is there a very marked change in the Builders' Hardware line. We are furnishing better styles and better made goods to-day for less money than we did in former years, and considering the high quality of American goods we do not think the buyer, seller or user has any cause to complain about the price.

It is gratifying to every American to see the great expansion in business in all sections of our country, and especially at this time it is interesting to know that our Southern friends will market their cotton crop at good prices. It is estimated that the cotton crop this last year will yield 13,000,000 to 14,000,000 bales, and it is being held at 10 cents a pound. It is estimated that \$600,000,000 to \$700,000,000 will go into the South on this commodity alone in the next few months. Surely cotton is king in that section of our country this year.

Our big railroad companies are spending a large amount of money leveling up their roads, cutting out curves and putting in extra track facilities to relieve congestion. Why? So the produce of our farms and our manufactured goods can be transported quickly from point to point at low rates. A new era of prosperity is before us.

Now while every department of our country's business is on the up grade of prosperity, should not our tariff tinkers be very, very careful when making their decisions on revision? We all know when there is protracted industrial depression some reason might be found for a drastic revision in tariff, but not now. It is reported that many large corporations have money in their treasury now for the extension of their plants, and are

in need of large quantities of new machinery and supplies, but they say until tariff matters are settled they will not make a move. So we believe it is the desire and wish of every business man in the country that the committee appointed to look into this tariff revision will formulate their ideas as soon as possible, and decide without prejudice, not for the benefit of a few, but for the benefit of our whole land.

Real estate in all industrial sections is steadily increasing in value. Factories that have been closed for months are reopening, and furnaces long extinct are working full blast. The output of pig iron alone during the month of December shows an increase of 163,000 tons over the November production. A vast army of workmen after a protracted time of idleness are again actively employed.

Our salesmen were in last week and we had pleasant business talks daily, also social gatherings in the evenings, which we know will be of great benefit to us all. Already we are receiving in every mail a large volume of business for long, well assorted orders and for good quantities, and everything portends to an early opening of spring trade in a volume that will be quite satisfactory.

Prices for the most part are steady and even, and the manufacturers are showing good sense in revision by not demanding higher prices than the times warrant, considering supply and demand. Some manufacturers are predicting a famine in some lines of goods. They say it is not a cry of wolf or a dream, but a reality.

Cleveland jobbers' stocks are well assorted, and they are prepared to look after the wants of their customers promptly and satisfactorily in every way, and we are confident that the coming months will bring to us a larger amount of business than we had in the corresponding months of last year.

St. Louis.

Norvell-Shapleigh Hardware Company.—This section has been blessed with a heavy snow. This will be very beneficial to the growing wheat, as it has been dry in a large part of the Central West. The snow storm has interfered with the running of trains and has delayed salesmen. Therefore, temporarily, there was a falling off in the number of orders. An unusual number of new stock orders are being placed. Merchants are buying spring goods liberally. All the signs point to a good, strong spring business.

There has been an advance in Galvanized Iron Ware of 5 per cent, and further advances are predicted. The manufacturers claim the goods at present are being sold without any profit.

If there is not one thing to interfere with business there is another. Now we are discussing the tariff. Now we read articles about the effect of the tariff revision upon business.

We may be of little understanding, but we cannot comprehend why the average jobber or retailer should quit buying on account of any fears of tariff revision. Jobbers only buy for a three or a six months' stock. For a long time past there has been no reason for speculative buying. There is no reason why retail merchants should buy for more than a 30 or a 60 day stock, and judging from the broken packages on some orders we imagine they buy for about a week's supply at a time.

When changes are made in the tariff there will not be anything sudden or unexpected. All of us who read will be notified of the progress of changes. It will be a slow process. Long notice will be given and only a few lines will be affected. Everybody will have ample opportunity to reduce stock.

Of course, we can see how railroads or others who buy thousands and thousands of tons of steel rails may hesitate in buying, but we must confess we cannot see where the Hardware jobber or retailer has anything to fear from declines caused by changes in the tariff.

Are we getting to be a country of nerves? Instead of attending strictly to our own business and being governed by the facts surrounding our business, are we all looking for trouble and ready to run at the drop of the hat?

Recently the writer was talking to one of the leading dry goods merchants of this city. He stated that at the time of the panic dry goods had reached the top notch in prices. Dry goods jobbers had sold millions of dollars' worth of goods for future shipment. They had placed millions of dollars of orders with the mills to fill these orders.

At the time of the panic, when dry goods prices started on the downward grade, retail merchants canceled their orders with the jobbers. The jobbers were compelled to accept these cancellations. They, however, could not cancel their orders with the mills. Therefore the dry goods jobber was placed in a position of accepting cancellations from his customers, but of being held to his contracts with the manufacturers.

In the meantime these goods declined from 25 to 30 per cent. The dry goods jobber lost the cost of his salesman's salary and traveling expenses in selling the goods, took in goods from the manufacturers and saw them depreciate on his hands without any recourse whatever, and has just passed through one of the most disastrous years in the dry goods business. We are informed, by reason of these conditions, hardly a dry goods house in the trade has made a dollar, and that many of them have lost a great deal of money.

It is a good thing for Hardware jobbers to consider these facts. How much more fortunate we have been! Our market, taken upon the whole, was very well sustained throughout the entire year. We suffered practically nothing from cancellations. While probably most of us have not made as much money in 1908 as we did in 1907, nevertheless we believe among Hardware jobbers very few dividends will be passed, even if little is added to the surplus account.

Now, while it has been fashionable for many to seek a cheap notoriety by attacking large corporations, is it not only fair for the Hardware trade of the country to express their thanks to the United States Steel Corporation for its successful efforts in steadying the Hardware and steel markets in the panicky days of 1907-08? There is no doubt that the firmness of the Steel Corporation steadied the nerves of many smaller manufacturers. There is no doubt that its example of reducing production instead of cutting prices was followed by all the leading manufacturers.

In taking their annual inventory the Hardware jobbers and retailers of the country should feel grateful to the Steel Corporation for many thousands of dollars it has saved them by holding up the market the past year.

Louisville.

Belknap Hardware & Mfg. Company.—The most striking tribute to the advent of the new year was the mammoth edition of *The Iron Age* of January 7. This is truly a cyclopedia for the trade and may well be kept, as it doubtless is, as a book of reference for the whole year. The advertisements are worth while to every man in business, as they are fuller and more explicit than usual, while the editorial matter and correspondence constitute a readable volume in itself. All of the friends of reliable information in the trade may, we are sure, have wished *The Iron Age* a Happy New Year whether they have actually put it down on paper or not on the arrival of this evidence of redundant prosperity.

There has been no excitement in the market in buying for advances. In fact, there is probably a slight reac tion as to volume, just because the people expected an advancing market after election, and it was liberally discounted immediately, but we are thankful this year that it has not called for any organized trumped up proclamations of prosperity. As a rule, people know when they are prosperous and when they are not, and it is hardly worth while to attempt to persuade them by verbal asseverations that they are, when all signs are confessedly to the contrary. Monthly statements come around too certainly for any one to deceive himself. We can always find reason for congratulating ourselves if we will that we are not as badly off as some other people we see and hear about, therefore we can keep on smiling. In other words we can cultivate a contented disposition if we will, no matter what betide.

One evidence of the still restricted business is in the fact that more people are applying for work probably than at any other time in recent months. There are several explanations of this; one is that the price of all skilled labor is abnormally high compared with past averages, and is therefore not fully employed. Instead of the housekeeper paying \$1 per hour when he used to pay 50 cents for stretching Wire or putting on a Washer, he learns to do these odd jobs himself, and the artisan finds that he has work but a few days in the week. It may be that we have not liquidated in the matter of wages as far as we are bound to. It is unpleasant, but seems to be one of the inexorable results of the counterswing of the pendulum.

Money is cheap, which will in time, of course, come to expand business operations and tempt the formation of corporations and the improvement of the older ones; in short, will adjust itself and is not to be hurried. A serious question, we imagine, will present itself to the Government, and that is the raising of revenues to pay increased expenses. The idea of economy has not been popular and probably will not be until we are older and more willing to stem a popular current.

Wherever crops have been good, credits seem to be on the improve. Contributing largely to this state of affairs are the well organized credit associations throughout the country. Taking hold of those whose credit may be ignorantly impaired and strengthening their positions or liquidating the business, as the case may develop necessity on scientific analysis, and by putting a stop to the sacrifice of ofttimes recently bought stock and by the exposure of rascality, all of these have gone to put business on a sounder basis than ever before and character has been made to count for more than ever before. Dishonest bankers have been brought to book by the juries out this way recently, and the use of bank funds for individual aggrandizement is not so popular as it was. The move in Indiana to have the State guarantee bank deposits will be watched with interest.

Portland, Oregon.

Failing-McCalman Company.—We take pleasure in saying that the further we go into this year the better seem the prospects for business. We believe that business will surpass in this section any previous year, and trust that other parts of the country have as good prospects as we have. The writer really has been so busy since the first of the year that he has had no time to write fully in regard to business conditions here, which fact should really speak for itself.

NOTES ON PRICES.

Wire Nails.—Business has not assumed the proportions that was hoped for by this time, but shows an increase over that of the first two weeks of the year. Specifications on contracts are larger in volume than new orders. Increased buying is anticipated for next month by the mills. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers		5
Carload lots to retail	merchants 2.0	0
Less than carloads to	jobbers 2.0	10
Less than carloads to	retail merchants 2.1	0

New York.—Local weather conditions have been unfavorable for business, so that the demand has been more than usually moderate. Nails are held on the basis of \$2.30 per keg, in small lots at store, but some sellers are occasionally inclined to shade this figure.

Chicago.—The development of business since the first of the year has not been quite up to expectations, but this is doubtless due in a large measure to oversanguine hopes. While the daily total of orders booked is not as large as it was in November and the early part of December, it is of such proportions as to be regarded as fairly satisfactory. The hesitating tendency in other markets is doubtless extended in a sympathetic way to Wire Products, where conditions, both present and prospective, are favorable to continued expansion. The lull, it is believed, will be but temporary. In the meantime,

prices are reported to be firmly maintained. Quotations are as follows: \$2.13 in car lots to jobbers, and \$2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—Several large consumers of Wire Nails report that as the result of salesmen going out on the road again, the completion of inventories and closing up the year's business, the new demand for Wire Nails in the past week has shown some betterment, more orders having been entered than in the previous two or three weeks. Actual new buying is not heavy by any means, but it is getting larger and the mills confidently believe that not later than February, demand will be very close to normal. Specifications against contracts are coming in at a better rate, and shipments by the mills this month promise to be somewhat heavier than in December. Prices are being well maintained, and there is said to be no disposition whatever on the part of the mills to shade prices in order to secure contracts. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10

Carloads, to jobbers	\$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

Cut Nails.—The demand continues comparatively light, but is an improvement on that during the earlier part of the year. Specifications on contracts are being received and some new business is being received. The regular price for Steel Cut Nails is \$1.80, base, per keg, f.o.b. Pittsburgh, for less than carloads, and \$1.75 for carloads and larger lots, but these figures are shaded in some cases. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

New York.—There are no changed conditions in the local market, demand continuing moderate. Steel Cut Nails are held on the basis of \$2.15 per keg for small lots, at store, but this price is not strictly adhered to by all sellers.

Chicago.—Beyond the small orders that are being placed to meet current requirements, the market is inactive. Until building weather opens again there is not much in sight to stimulate trade. Prices remain unchanged with \$1.93, Chicago, as a minimum for Steel Cut Nails. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, \$2.08; Steel Cut Nails, \$1.98.

Pittsburgh.—The demand is reported as slightly better and jobbers are also specifying more freely against contracts placed some time ago. This improvement in demand comes more largely from the South, where the consumption of Cut Nails is heavier than in some other sections of the country. The tone of the market is fairly strong, the mills stating that there is no room for cutting prices of Cut Nails and leaving a profit to the mills. The regular price for Steel Cut Nails is \$1.80, base, per keg, f.o.b. Pittsburgh, for less than carloads, and \$1.75 for carloads and larger lots, but these figures are shaded in some cases. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

Barb Wire.—The mills have cleared up the orders on their books and are in position to handle new business when it comes in. Some orders are being received from the South, but the spring demand is not yet in full swing. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

I	Painted. Ga	al.
Jobbers, carload lots	\$2.10 \$2.	40
Retailers, carload lots	2.15 2.	45
Retailers, less than carload lots	2.25 2.	55

Chicago.—According to reports from salesmen the prospects for a fairly active demand in Southern territory are most promising. Orders are beginning to come in from that section, and by February 1 the movement will likely be well under way. Firm maintenance of prices, we are advised, continue to characterize the situation. Quotations are as follows: Jobbers, Chicago, car lots, Painted, \$2.28; Galvanized, \$2.58; to retailers, car lots, Painted, \$2.33; Galvanized, \$2.63; retailers, less

than car lots, Painted, \$2.45; Galvanized, \$2.75; Staples, bright, in car lots, \$2.25; Galvanized, \$2.55; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots,

Pittsburgh.—As yet the new demand is dull, but it is believed that by the middle of February or not later than March 1, new orders will be more plentiful in anticipation of the opening up of spring trade. The mills have cleaned up the old business on their books and are in shape to make prompt shipments on new orders. We are advised that regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Plain Wire.—Specifications on contracts make up the bulk of the business received by mills, as present requirements in the way of new business appear to be satisfactorily filled by small lots. Prices are well maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain, and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Chicago,—Business is a little slow in starting, and specifications are not coming out as freely as it is expected they will within a short time. There is nothing in present developments to discourage the belief hitherto entertained that the coming season will be a busy one for Fence manufacturers, with a fair share of activity in other Wire consuming industries. We are advised that regular prices are being evenly held. We quote as follows: Car lots to jobbers, \$1.98, f.o.b. Chicago, and to retailers. \$2.05.

Pittsburgh.-New orders are comparatively few, and are mostly for small lots for actual needs, but specifications against contracts are coming in at a fairly satisfactory rate. New buying is expected to be heavier in the early part of February, as jobbers and consumers alike should be placing orders in that month to meet the requirements of spring trade. It is stated that the outlook for the Plain Wire trade this year is exceptionally good, farmers having had heavy crops last year, for which they have received high prices, and will be in the mood to build Fences and make other improvements in which Wire will be largely used. We are advised by the mills that regular prices are being maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain, and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Conductor Pipe, Eaves Trough, &c.—The irregularity in Conductor Pipe and Eaves Trough seems to be increasing rather than diminishing, and the market is assuming a distinct tone of weakness. Little pretence is now made of adhering to the so-called established prices, except to the smallest trade.

Wire Cloth.—As we go to press announcement is being made by the manufacturers of an advance of 5 cents per 100 sq ft. on all meshes of Painted and Galvanized Wire Screen Cloth, to take effect immediately. In accordance with this advance the manufacturers' price to the retail trade on 12-mesh Painted Cloth becomes \$1.35 per hundred square feet.

Shot.—Some announcement regarding prices on Shot is expected from manufacturers during the coming week. A moderate reduction is expected by the trade.

Lanterns.—Several manufacturers of Tubular Lanterns are quietly making quotations to the larger trade representing moderate concessions on lines in which they meet the keenest competition from independent manufacturers.

Silver Ware.—Leading manufacturers of Silver Ware have recently made reductions of importance in prices on some of their lines.

Lamp Burners.—A moderate reduction has recently been made by some manufacturers of low priced combination Lamp Burners.

Gong Bells.—A reduction of about 5 per cent, in Locomotive and Trip Gongs has been announced by some manufacturers.

Hatchets.—No business of importance has developed since the first of the year which would afford a basis for gauging the market on Hatchets. Keen competition, however, is expected to develop in which the possibility of securing some concessions in price is not lost sight of by careful buyers.

Rope.—There is no noticeable improvement in the demand for Cordage, requirements of the trade appearing to be light. It is regarded by some that better trade conditions will be in evidence after the first of February. It is understood that Pure Manila Rope has been quoted at 81/4 to 81/2 cents, base, but that most manufacturers are trying to get 81/2 to 83/4 cents for it. The price of Sisal Rope remains without change. General quotations on small quatities of Rope, 7-16 in. in diameter and larger, are as follows: Pure Manila, 81/2 to 83/4 cents; Pure Sisal, 6% to 7 cents. Mixed grades of both kinds grade down in price according to quality. These prices are sometimes shaded 1/4 cent on larger orders. Jute Rope, ¼-in. and up, No. 1, Is 6¼ to 6½ cents; No. 2, 5¾ to 6 cents.

Linseed Oil.—No further change in the price of Oil has taken place, but further advances would not come as a surprise to the trade. A few carloads of contract Oil have been sold at a shade under the 54-cent basis, but large buyers are indifferent as a rule. The jobbing demand is moderate. Crushers report that they have a comparatively few contract orders on their books for this time of the year. Quotations in 5-bbl. lots are as follows: State and Western Raw, 54 cents per gallon; City Raw, 55 cents per gallon. Boiled Oil is 1 cent advance on Raw.

Spirits Turpentine.—The local market has declined during the week owing to accumulated stocks at primary points in the South, with not enough demand to move them. Demand at this point is comparatively light. New York market is represented by the following quotations: Oil Barrels, 43½ to 44¾ cents; Machine Made Barrels, 43¾ to 44 cents per gallon.

Paris Green.—Manufacturers of Paris Green have not made prices for 1909, and probably will not do so until nearer the time when orders are usually placed. In 1908 prices were not announced until the latter part of April. Manufacturers are booking such orders as are being received, to be billed at the prices made later by the manufacturers. Orders are coming in slowly, and it is understood that in some sections of the country merchants carried over considerable Green.

Window Glass .- Reports which are not officially confirmed are to the effect that at the meeting of Window Glass manufacturers, held at Columbus, Ohio, last week. the plan of forming the Imperial Glass Company was abandoned and another one substituted. The new plan contemplates, it is reported, the forming of a manufacturers' organization on the basis of a forfeit of \$100 per pot for breaking the agreements entered into. It is contemplated, it is said, to operate only about half of the country's capacity of Hand Blown Glass, and thus curtail production. Demand continues quiet, with stocks considered to be generally low in manufacturers' and jobbers' hands. The following quotations for Hand Blown Glass will act as a guide to the market, but probably are not rigidly adhered to: 90 and 20 per cent. for Single and 90 and 25 per cent. for Double Strength Glass, from manufacturers' list. Some jobbers in Eastern territory have recently made quoted discounts of 90 and 30 per cent. on Single and 90 and 35 per cent, on Double Strength Glass, to 90 and 35 for Single and 90 and 40 for Double, from jobbers' list of October 1, 1903. The quotations of the Eastern Window Glass Jobbers' Association and the Western Window Glass Jobbers' Association, from the jobbers' list of October 1, 1903, which is about 25 per cent, higher than the manufacturers' list, are as follows: Single, 90 and 25 per cent.; Double, 90 and 30 per cent.

TEXAS MERCHANTS IN CONVENTION.

(By Telegraph.)

THE eleventh annual convention of the Retail Dealers' Hardware and Implement Association of Texas opened at 10 o'clock Tuesday at the auditorium of the Commercial Club, Dallas. Careful preparations had been made for the meeting and a large body of members and guests were present when President O. E. Schow of Clifton called the assembly to order and made a brief address, in which he extended a cordial welcome and announced the opening of the convention.

After an invocation by the Rev. J. Frank Smith, Mayor Hay of Dallas gave an official welcome to the members and their friends in an eloquent address. Besides expressing his pleasure at their presence and inviting them to the enjoyment of all the city affords, he referred to some of the important questions before them and especially to some of the relations of legislation to business interests. A very felicitous response was made by J. R. Cole of Sherman, vice-president of the association. J. M. Wendelken of the Dallas Implement, Vehicle and Machinery Club, also delivered a brief welcome.

E. W. McCullough's Address.

An interesting address followed by E. W. McCullough, secretary of the National Wagon Manufacturers' Association of the United States, who referred to some of the subjects which are to receive consideration at the convention, and explained the way in which some important trade matters are regarded by the manufacturers, in this connection touching on the conditions which make necessary an advance in price of Wagons. He urged upon the merchants the adoption of the best business methods and the correction of some abuses which have crept into the trade. The importance of accurate cost keeping was especially emphasized, and the point made that merchants frequently lost money on sales which they considered effected at a profit.

D. M. Parry of the Parry Mfg. Company, Indianapolis, Ind., and R. R. Williams, Hardware editor of *The Iron Age*, were called upon by the president, and responded in brief addresses, which were received with appreciation by the convention. After the appointment of some committees adjournment was had until the afternoon.

Annual Address of the President.

When the convention assembled at 2 o'clock the president's annual address was given, and listened to with interest. It was a résumé of the president's identification with the work of the association during the year, and indicated the efficiency and good judgment which have characterized his administration. A matter of special interest was his address before the Jobbers' Association, in which he pointed out the relations which should exist between the wholesale and retail trade, touching especially on the position of the local jobber in matters in which he is apt to trench upon the province of the retail merchant. The attitude of the president was heartily approved by the meeting, and his address formally adopted as a correct statement of the principles which apply in the premises.

Secretary McManus' Address.

The report of Secretary J. W. McManus was next presented. It is a record of a year of exceptional activity and success, and was listened to by the convention with marked interest. It touched upon many topics which are subjects of consideration by the association, many of which are to be discussed at the present meeting. Among those are parcel post, the importance of merchants making use of trade journals, the organization of local clubs, co-operative buying and other practical matters closely related to retail interests. Reports of several committees concluded the first day's work of what promises to be a very successful convention.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

From Springfield Hardware Company, Springfield, S. C., which has been incorporated to deal in general Hardware, Tinware, Stoves, Paint and Sporting Goods.

From Zipperer & Co., succeeding Brooks & Co., Warren, Ohio, in the retail business in Hardware, Paints, Oils, Stoves, &c.

From Sevison Hardware Company, Constantine, Mich., which handles Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints and Oils. W. P. Hamilton succeeded F. T. Sevison in the firm of Sevison Bros., and the name of the concern was changed as above.

FROM A. F. ERICKSON, Argusville, N. D., whose Hardware, Implement and Paint store has been destroyed by five.

FROM GURLEY BROS., Fairview, Mo., who are building a fine new brick building.

From Ashby Hardware Company, Fairfield, Neb., who has succeeded Phillips & Ashby Company in the Hardware and Stove business.

From A. M. Coffey, Mentor, Minn., handling Hardware, Stoves, House Furnishings, Implements, Paints, &c, whose store has been damaged by fire.

From John S. Spoerl, Hamilton, Ohio, whose place of business was destroyed by fire January 9.

The Carborundum Company.

THE Carborundum Company, Niagara Falls, N. Y., will increase its already extensive plant by the addition of a four-story brick and steel structure. The new building is to be 225 ft. in length and 60 ft. in width. One entire floor is to be given over to the manufacture of Carborundum Sharpening Stones, Hones, Scythe Stones and other specialties. The growth of this branch of the company's business has been remarkable. The other floors will be used for the mixing and wheel molding departments and for storage room.

During the past year the company has added several new lines to its manufactured products. These include Garnet Paper and Cloth, used largely in the wood and furniture trade and Emery Paper and Cloth, used in finishing metal and machinery parts. Plans are under way to have the company cover the entire abrasive field with its products, and as these plans mature they will result in a still larger plant and a greater working force.

The American Sheet & Tin Plate Company, Frick Building, Pittsburgh, Pa., has issued a large card which gives a series of tables covering the sizes of sheet list price per pound, weight per square foot in ounces and in pounds, weight of each sheet, number of sheets in a bundle and weights of bundles by gauges running from Nos. 10 to 30 of the Apollo Best Bloom Galvanized Sheets. This table was copyrighted in 1898 by the Apollo Iron & Steel Company, afterward absorbed by the American Sheet & Tin Plate Company. The table is of value to merchants, as well as consumers of Galvanized Sheets.

An initial dividend of 1 per cent. has been declared on the common stock of the Sears-Roebuck Company, Chicago. The company reports a material improvement in the demand for general merchandise in the Central West, and the belief is expressed that if business continues as good as during the past six months, a similar disbursement may be made every quarter.

RETAIL HARDWARE CONVENTIONS.

During the next few weeks the following retail Hardware conventions will be held, the list being arranged in the order of dates:

NORTH DAKOTA RETAIL HARDWARE ASSOCIATION, January 26-28, Bismarck. Convention at Commercial Club rooms. Official headquarters at Grand Pacific Hotel. Hardware exhibition at the Armory. Information as to exhibits and hotel accommodations may be obtained from N. S. Young, secretary, Commercial Club, Bismarck. Secretary, C. N. Barnes, Grand Forks.

Missouri Retail Hardware Association, February 3-5, St. Louis. Hardware Exhibition. Secretary, F. D. Kansteiner, 1008 Market street, St. Louis.

WISCONSIN RETAIL HARDWARE ASSOCIATION, February 3-5, Milwaukee. Convention and Hardware Exhibition at Public Service Building. George W. Kornely, secretary Exhibit Committee, 806 Third street, Milwaukee. Secretary, C. A. Peck, Berlin.

CONNECTICUT RETAIL HARDWARE ASSOCIATION, February 8 and 9, Waterbury. Headquarters at Hotel Elton. Secretary, J. DeF. Phelps, Windsor Locks.

OKLAHOMA RETAIL HARDWARE AND IMPLEMENT DEALERS'
Association, February 9-11, Oklahoma City. Convention and Hardware Exhibition at Exposition
Hall. Secretary, D. C. Patterson, Bassett Building, Oklahoma City.

Ontario Retail Hardware and Stove Dealers' Association, February 9-11, Hamilton. Headquarters and convention at the Waldorf Hotel. Secretary, Weston Wrigley, 10 Front street, East, Toronto.

FLORIDA RETAIL HARDWARE ASSOCIATION, Tampa, February 10 and 11. Secretary, W. K. Jackson, Lakeland.

Iowa Retail Hardware Association, February 9-12, Des Moines. Convention at Yeoman's Hall. Hardware Exhibition at the Shriners' Temple. Headquarters at Savery Hotel. Secretary, A. R. Sale, Mason City.

Pennsylvania Retail Hardware Association, February 10-12, Philadelphia. Headquarters and convention at Bellevue-Stratford. Hardware Exposition at First Regiment Armory. Secretary, W. P. Lewis, Huntingdon.

West Virginia Retail Hardware Association, February 16-18, Charleston. Secretary, Leslie Hawker Shinnston.

Nebraska Retail Hardware Association, February 16-19, Omaha. Convention and Hardware Exhibition, at the Auditorium. Secretary, J. Frank Barr, Lincoln.

NEW YORK STATE RETAIL HARDWARE ASSOCIATION, February 16-19, Rochester. Headquarters and Convention at Hotel Seneca. Hardware Exhibition at Convention Hall. Chairman Exposition Committee, Louis J. Ernst, Rochester. Secretary, J. B. Foley, Syracuse.

ILLINOIS RETAIL HARDWARE ASSOCIATION, February 17-19, Springfield. Convention at the State capitol. Hardware Exposition at the State armory; space in charge of F. B. Schlitt, Springfield. Secretary, L. D. Nish, Elgin.

KENTUCKY RETAIL HARDWARE AND STOVE DEALERS' ASSO-CIATION, February 23-25, Louisville. Hardware Exposition. Headquarters at Seelbach Hotel. Secretary, J. M. Stone, Sturgis.

MINNESOTA RETAIL HARDWARE ASSOCIATION, February 23-26, Minneapolis. Convention and Hardware Exposition at the Armory. Secretary, M. S. Mathews, Guaranty Building, Minneapolis.

Ohio Hardware Association, February 23-25, Columbus.
Convention and Exposition at Memorial Hall; W.
M. Crumrine, Chairman Exhibit Committee, Salem.
Secretary, Frank A. Bare, Mansfield.

Colorado Retail Hardware Association, February 25-27, Denver. Headquarters and convention at Albany Hotel. Secretary Adolph Unfug, Walsenburg. Indiana Retail Hardware Association, March 2-5, Indianapolis. Headquarters, Hotel English. Hardware Exposition. Secretary, M. L. Corey, Argos.

SOUTH DAKOTA RETAIL HARDWARE ASSOCIATION, March 2-5, Huron. Convention and Hardware Exposition at the Auditorium. Secretary, H. E. Johnson, Redfield.

California State Retail Hardware Association, March 10-12, Oakland. Secretary, L. R. Smith, Oakland.

New England Retail Hardware Dealers' Association, March 11-12, Springfield, Mass. Hardware Exhibition. Secretary, Charles L. Underhill, Somerville,

Colorado Retail Hardware Association.

Announcement has just been made that the annual convention of the Colorado Retail Hardware Association will be held in Denver on February 25, 26 and 27. The headquarters of the association will be at the Albany Hotel, where the meeting will also be held.

Illinois Retail Hardware Association.

The members of the Chicago Retail Hardware Association, all of whom are affiliated with the Illinois Retail Hardware Association, have about completed arrangements for a special train to the Illinois Hardware convention at Springfield on February 17-19. The train will leave on the Wabash Railroad at 11 o'clock on the morning of the 16th. Manufacturers and jobbers of Hardware and kindred lines and their representatives are invited to join the members on the trip. Any information in regard to the arrangements may be obtained from H. C. Peppler, secretary of the association, 700 Lincoln avenue, Chicago.

Iowa Retail Hardware Association.

That the Iowa Retail Hardware Association has been very energetic and successful during the past year in corralling new members is evidenced by the fact that nearly 200 names have been added to the roll. The total membership at the present time is a few short of 900, and it is estimated that this represents about 50 per cent. of the actual number of Hardware merchants in the State. Prior to and during the next annual convention at Des Moines, February 9, 10, 11 and 12, it is hoped to add many new names.

Michigan Retail Hardware Association.

The Executive Committee of the Michigan Retail Hardware Association held a meeting last week, at which preliminary plans were discussed for the annual convention which will be held in Saginaw next August. The association, of which Arthur J. Scott, Marine City, is secretary, has lately issued a very interesting booklet relating to the organization, "How It Has Made Good and Why It Will Continue to Be a Big Factor in the Hardware Trade of Michigan." The story of the past, the present and the future of the association is told in a terse and impressive way. There are also chapters on the social side and mutual fire insurance as features having had much to do with the development and success of the association. The booklet likewise presents the constitution and by-laws and an application blank for membership.

Minnesota Retail Hardware Association.

The Minnesota Association reports that all of the space on the first floor of the Armory, Minneapolis, where the Hardware exposition in connection with the annual convention will be held, has been disposed of. As many firms have been unable to secure space, and believing that others would desire accommodation, the officers of the association have decided to throw open for exhibits the spacious balcony, which commands a fine view of the floor below. Members of the association must pass by this floor to and from the convention hall, which is on the third floor of the building. The spaces on the balcony are regarded as desirable ones, especially for concerns wishing to show the lighter goods or manufacturers' samples. The spaces are priced at \$15, \$20 and \$25.

Bulletin No. 16, issued by the Insurance Department of the State of Minnesota under date of January 1, shows the following condition on November 30 last of the Retail Hardware Fire Insurance Company of Minneapolis, Minn.: Total income, January 1 to November 30, \$158,948.98; paid for losses, \$50,620.20; paid in dividends, \$51,421.88; total admitted assets, \$169,383.30; total liabilities (including reserve), \$48,355.02; surplus, \$121,028.28. The report of the department commends the condition of the company and its methods of doing business.

North Dakota Retail Hardware Association.

The formal programme for the annual meeting of the North Dakota Retail Hardware Association, which will be held in Bismarck, January 26, 27, 28 and 29, is about ready for distribution. Among the special addresses arranged for are those by George H. Maxwell, Chicago, on "Protection of Home Trade"; by J. M. Callahan, freight department, C. & N. W. R. R., Milwaukee, Wis., on "Transportation"; by W. S. Stambaugh, Fargo, on "Legal Phases of Association Work," and by Charles F. Ladner, St. Cloud, Minn., on "Hardware Mutual Insurance." Mr. Maxwell, who is prominently identified with the American Homecroft Society and the National Irrigation Association, will also deliver a stereopticon lecture on "The Future of the Nation," on the evening of the 27th inst. A. T. Stebbins, Rochester, Minn., president of the National Retail Hardware Association, will be in attendance and make an address on the work of the association. The Question Box discussions of the convention will also be under his efficient supervision. The programme of entertainment for those who attend the convention is an ample one, and altogether it is expected that the meeting will prove to be a very interesting event.

Ontario Retail Hardware and Stove Association.

As already announced the annual convention of the Ontario Retail Hardware and Stove Dealers' Association will be held in Hamilton, Ont., on February 9, 10 and 11, with headquarters at the Waldorf Hotel. The outlook for a large and representative gathering of the trade is very bright, and it is expected that the convention will prove to be the greatest event of its kind in the history of the Hardware trade of Canada.

Pennsylvania Retail Hardware Association.

We are advised that while the demand for space at the Hardware exposition to be held in conjunction with the annual meeting of the Pennsylvania Retail Hardware Association, at the Armory, Philadelphia, February 10-12, has been very large, there are still some desirable booths left. Application for these should be made without delay, as the spaces are being disposed of rapidly. During the first two weeks of January this association has added 36 members, something better than two a day. Since August last, when a systematic effort was begun to interest nonaffiliated merchants of the State, as well as houses in New Jersey, Delaware and Maryland, more than 300 names have been added to the membership roll, and there is no doubt that Pennsylvania is the banner State of the country so far as number of new members taken in since the last convention is concerned.

A NOVEL SKATING WINDOW.

OOKING glass covered with whitening has been recommended as making the best imitation of natural ice, but for some purposes Zinc is considered better. A plan has been received from a correspondent for making a skating window, as follows: Take two Brass Screw Pulleys, having Wheels the same width as the runner of the Skate to be used. File one side of the rivet heads and punch them through far enough to admit of removing the Wheels from the frames. A dummy flooring made out of old box lid boards should be laid on top of the flooring of the window. Bore two holes in this subflooring, say, 6 in. apart, counterboring them deep enough to take in the base of the Screw Pulley up to the slot.

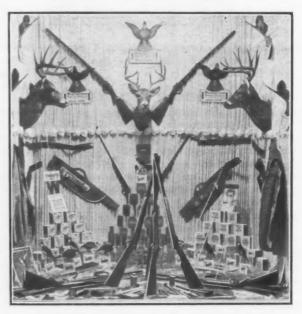
Cover the boards with a large sheet of Zinc and punch two holes in the Zinc directly over the holes in the wood. In the center of each hole make a Gimlet hole in the flooring of the window just large enough to take in nicely the screw thread of the Pulley Brackets, and screw these down until the bottom of the slot from which the Pulley was removed comes just even with the surface of the ice (or Zinc). Turn these so that the slots line with each other.

Take a pair of Nickel Plated Skates from stock and carefully insert the runner of the left Skate in the protruding slots of the Pulley Bracket. Push the rivets through again so that they come over the top of the runner and wedge fast with a little wood under the rivet between it and the runner. Fasten a shoe to the Skate, and complete with the stuffed figure of a boy in the act of skating, the right foot being thrown backward and suspended in the air by an invisible wire running down from the ceiling and fastened to the Skate on the uplifted foot. Outline on the Zinc fancy figures or lines (with extra thick whitening) as if cut on the ice by the skater.

The companion piece to this is that of a girl holding the boy's outstretched partly uplifted hand, supported by invisible wire from the ceiling, and mounted on Skates as above described. It is needless to add that such a window sells Skates, and now is the season of the year to try it.

A HUNTING WINDOW.

THE effective window display of hunting equipment here illustrated was made by the Lowe-Carter Hardware Company, Weatherford, Texas, being arranged by R. D. Speed, Jr., who has this department in charge. The company arranged the display some time since, but



A Hunting Window,

has been so much gratified by results obtained that It is planning to build another one. The company's show window has proved to be a real salesman.

The display reproduced included almost everything that a hunter might require for an outing. Stuffed deer heads were placed on the walls and deer hides formed an attractive covering for the floor. Stuffed quail were also used and under one of them was a card sign reading

Miss Fluffy Feathers Quail

At Home After November 1.

This referred, of course, to the opening of the season on quait. There were two bunches of quail in the display and a number of ducks on the walls. From the corners of the window extended Dog Chains fastened to Collars lying on the floor, Among the other articles in the window may be mentioned Guns, Gun Cases, Belts, Shells, Hunting Coats, Cleaning Rods, Gun Oil, &c.

DEATH OF THOMAS J. ATKINS.

THOMAS J. ATKINS, a member of the firm of Sargent & Co., of New York and New Haven, Conn., died at his home in Brooklyn, of pneumonia, Tuesday afternoon, January 18, from the immediate effects of a cold contracted three days previously, although Mr. Atkins had been ailing for a year or more. He was prominent as manager of the New York house of Sargent & Co., and exercised a general oversight of its affairs.

Mr. Atkins was born in New York March 4, 1838, and was educated in the public schools of Brooklyn. At the age of 16 he was employed as a copyist in Lawyer John Winslow's office in Brooklyn, and two years later, February 4, 1856, he entered the service of Sargent & Co., New York, with whom he had since been identified. For 53 years he had wrought diligently and successfully with the partners with whom, in his young business life, he became associated. It is not often permitted that four executives are business colleagues without interruption in the same business for an average of over 50 years each. George H. Sargent, president of the company, now in his eighty-first year, entered the business in January, 1853, after graduating from Harvard, Mr. Atkins in February, 1856. William J. Ladd in September, 1856, and



THOMAS J. ATKINS.

George Munson in 1861, the latter having previously been with the Russell & Erwin Mfg. Company.

Mr. Atkins was a man of marked business ability and as noted for wisdom in his line of thought and action as for his earnest enthusiasm and unwearying diligence. As an upright and sagacious merchant and man of affairs, he occupied a place among the most distinguished in the range of his experience and activities. His diplomatic tact and sense of justice made him popular alike with competitors and those whose interests were identical with his own. His life, as exemplified by deeds and actions, whether social or in business channels, is an example worthy of emulation.

The death of Mr. Atkins will be sincerely deplored by many, as he gave the closest attention to the details of the various organizations with which he was connected and his wise counsel will be greatly missed. He was an active member of the Throop Avenue Presbyterian Church, a trustee for the past 25 years and chairman of its Board of Trustees at his decease. He had been identified with the Bushwick & East Brooklyn Dispensary since its organization and served as chairman of the Executive Committee for many years. He was also a member of the Committee of Management of the Bedford branch of the Young Men's Christian Association, and one of the large contributors toward the building fund recently raised to erect a new structure. He was elected a trustee of the East Brooklyn Savings Bank in 1879 and vice-president in 1887. In January, 1907, he was chosen president of the bank to succeed the late Darwin R. James.

A Home Made Twine Holder.

A N experiment, made by one of the salesmen in the employ of the Fowler & Sellars Company, White Plains, N. Y., and which proved highly satisfactory, is shown in the accompanying illustrations. The idea in view was to secure a receptacle for a ball each of cotton and flax twine, where they would be kept in a clean and usable form, and located conveniently near the roll paper

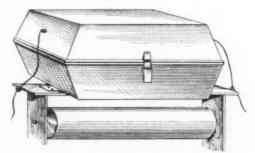


Fig. 1 .- A Home Made Twine Box.

for wrapping goods. This result was accomplished by using two-pieced Tin Cake Pans, taken from stock, each 9 in. long, 5 in. wide and 2½ in. deep. A tin partition was soldered in the lower pan, dividing it into equal parts. Two brass hinges were soldered at the back of the pans, and a spring brass clip was attached to the front of the lower pan to hold the top one down. The openings through which the twine passes are short pieces of brass tubing. The completed holder was fastened on the top of the roll paper holder by screws through pieces of tin soldered to the bottom of the lower pan at both ends. Screw eyes at the ends of the board, upon which

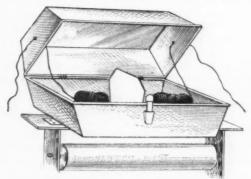


Fig. 2.-Interior of Home Made Twine Box.

the holder rests, confined the ends of the twine within easy reach of the salesman. While this holder cost more than a cast iron or wire one would, it was regarded with favor by the company as solving the problem of a receptacle for two balls of twine somewhat in harmony with the other store fixtures.

SAMUEL O. BURNETT, for 57 years in the Hardware and Housefurnishing Goods business at 288 Fulton street, Brooklyn, N. Y., died at his home January 16, in his seventy-sixth year. He entered the Hardware business at the above address in early youth, the store having been established in 1831 by J. C. Duryea, who was succeeded by Young & Palmer. Mr. Burnett became a partner in 1865 on the death of Mr. Young.. The firm continued as S. O. Burnett, until the latter's retirement In 1906, after nearly 60 years' service. As wealthy patrons removed to New York and elsewhere, Mr. Burnett continued to execute orders for them, even to making shipments to Australia and Europe. Mr. Burnett was highly esteemed in business and social circles for many sterling qualities, and was a director in the Nassau Fire Insurance Company and identified with the management of some of the borough's oldest banks.

THE Hardware store and stock of George J. Frank, Bay City, Mich., was recently damaged by fire to the extent of \$15,000. Adjustment on the \$10,000 insurance carried has been made in full.

"Just a Letter."

YN sending out an attractive calendar for 1909, Ralph Brown, the head of the jobbing house of Ralph Brown Company, San Francisco, Cal., addressed to its correspondents a neatly printed circular letter wishing them a happy and prosperous New Year, expressing appreciation of courtesies past and hopes for continued favors. The circular is headed "Just a Letter," and under this caption Mr. Brown takes occasion to say a few words about business letters, which are well worth quoting for the benefit of the trade at large, as follows:

efit of the trade at large, as follows:

In the "Reveries of a Bachelor," Ik Marvel says, "Blessed be letters, they are the real comforters, the true heart talkers," and it's so.

Are there any of us that can't read between the lines of a letter, whether it is honest, sincere, straight from the heart or not? I always did believe in letters—honest ones. When I started selling goods on the road at 18, it did me more good, and made me work harder, than getting a raise in salary, for the boss to write me in lead pencil on a piece of paper. "You're doing fine. Wish we had more like you." And the remembrance of those words of appreciation for hard work done and results accomplished will always remain, and I think we are all alike.

Write some of your good boys and girls, the workers in your store, a note occasionally about what a help and comfort they are to you, and then watch the "fur fly around the coop," while they do things, and see how happy it makes them.

Write us a letter once in a while and say, "Hello. hope you are getting along all right!" and you bet it won't go in the waste basket.

TRADE ITEMS.

THE WRIGHT WIRE COMPANY, Worcester, Mass., is sending out a convenient price-list referring to its Excelsior brand Wire Picture Cord, and illustrating the various numbers in actual size. Under the caption, "How Much Cord for a Dollar?" attention is called to the fact that there is considerable Cord on the market which does not come up to the standard in length or number of strands, and the company emphatically states that the product put out under its Excelsior brand is guaranteed full count and full length. For the convenience of the trade in checking up this matter the company is also sending out a sheet giving the average weight per package of one dozen coils, full size and full length, for all numbers of Cord.

A. C. Gerow, who has for eight years been a buyer for Oliver Bros. Purchasing Company, New York, has resigned that position to enter the New York office of the Pacific Hardware & Steel Company, San Francisco, Cal. The change dates from the first of the year.

THE NEW ENGLAND IRON AND HARDWARE ASSOCIATION will hold its annual dinner at the Hotel Somerset, Boston, February 2. The principal speakers of the evening will be Hon. J. P. Dolliver, United States Senator from Iowa, and Hon. F. J. Garrett, Representative from Ten-There will be other speakers, including A. B. Marble, president of the association.

THE A. J. HARWI HARDWARE COMPANY, Atchison, Kan., gave its annual banquet to its traveling men and members of its office force at the Hotel Byram, December 31. The guests of honor were W. J. Bailey and W. S. Washer of Atchison and G. M. Robinson, Mansfield, Ohio. Remarks were made by several present, and the affair was a most delightful and informal one.

CHARLES WEILAND, 149 Chambers street, New York, has materially increased his line of automobile supplies and sundries, and is now fully equipped to supply the trade with these goods, the demand for which is rapidly growing. Mr. Weiland is getting out a special catalogue adapted to the requirements of automobile supply houses and Hardware merchants who make a specialty of these

THE J. A. HARPS MFG. COMPANY, Greenfield, Ohio, manufacturer of Never Fail Oil and Gasoline Cans, held a round-up of its salesmen during the first week in the year. On the evening of January 5 a banquet was held at the Hotel Harper, and the succeeding evening Mr. Harps entertained the selling force at his own home.

THE TENK HARDWARE COMPANY, Quincy, Ill., has acquired a piece of property 95 x 190 ft. on which it will erect a modern jobbing warehouse. The location is an excellent one, affording ample trackage facilities, and the

plans, while still in the rough, call for a five-story brick building with reinforced concrete columns and floors, equipped with all facilities for the convenient and expeditious conduct of a large jobbing business. The company has outgrown its present quarters, which, however, will be retained for the accommodation of city trade.

THE AMES SHOVEL & TOOL COMPANY, Boston, Mass., is sending to its customers a large and expensive calendar for the year 1909. The sheet for each month gives a view of one of the several plants in colors, and on the back of each monthly sheet is a complete calendar for the year.

THE HARDWARE MERCHANTS AND MANUFACTURERS' Association of Philadelphia held its annual meeting at its rooms in the Bourse Building in that city on Tuesday, January 19. Routine business was transacted, after which the following officers were unanimously elected for the ensuing year: President, Edward S. Jackson; vicepresident, Paul A. Griffith; secretary-treasurer, T. James Fernley; Board of Directors: William W. Supplee, Thomas Devlin, T. James Fernley, Robt. J. Johnson, Paul A. Griffith, Edward S. Jackson, Chas. Z. Tryon, A. S. King, Jos. J. McCaffrey.

AUSTIN WHITCOMB, a prominent Hardware merchant of Beverly, Mass., died January 15, aged 61 years. He was born in Enosburg, Vt., January 15, 1848; his death came on the anniversary of his birth. When 19 years old he went to Massachusetts and almost immediately secured employment in a Hardware store at Lynn, where he remained until 1873, when he moved to Beverly, and, forming a partnership with the late John Carter, established a Hardware store. The rapid growth of the business compelled them to seek larger quarters, and they removed to the present location. 'Mr. Carter died several years ago, and Mr. Whitcomb continued the business, assisted by his son, until his death. He had a wide acquaintance in the trade and was prominent in the New England Retail Hardware Dealers' Association, of which he was a charter member. He was president of the Beverly Building Association from the time of its organization in 1889. The association owns some of the large factory buildings of the city, and Mr. Whitcomb was its business manager until compelled to give up the work because of failing health. He was president of the Beverly Business Men's Association, and was prominent in the local Board of Trade, of which he had been the president. He was a trustee of the Beverly Savings Bank. Prominent in secret organizations he was a Knight Templar, an Odd Fellow and a member of the Royal Arcanum and the United Order of Workmen. He was a member of the Congregational Church. He leaves a widow and two sons.

A NEW GLASS CUTTING COMPOSITION has been discovered and is being used by the Onward Mfg. Company, with fatories at Menasha, Wis., and Berlin, Ont., in the manufacture of Sliding Glass Furniture Shoes, which are designed to take the place of the wheel caster. This composition is described as one-half best Portland cement and one-half silica sand, which, when thoroughly mixed and evenly tamped, makes a stone of even quality without hard and soft spots and will grind glass without scratching. The cost is said to be about 10 per cent. of that of the common grindstone, and has been used successfully in these factories for over a year.

A young man representing himself to be a son of W. W. Conde, president of the W. W. Conde Hardware Company, Watertown, N. Y., has succeeded in obtaining some advances of money in New York and New Jersey on the strength of his supposed relationship. He is an impostor.

THE Chas. F. Ladner Hardware Company, St. Cloud, Minn., has been incorporated with a capital of \$50,000. This step was prompted by the growth of the business and the necessity for still further expansion. Under the new organization Mr. Ladner will have associated with him in the management of the business Frank Jung, whose extended Hardware experience especially fits him for the duties of the position.

Merchandise Post and Cheap Postal Notes.

FROM OUR SPECIAL CORRESPONDENT.

Washington, D. C., January 19, 1909.

NEW project for a merchandise post on rural routes has been brought forward in the House by Repreentative Foster of Vermont, who is an ardent champion of the Postmaster-General's various postal innovations. Mr. Foster proposes to consolidate third and fourth class matter handled on rural routes and to provide a rate of postage even lower than that suggested by the Postmaster-General, although with a slightly lower weight limit. The Foster bill, which has just been introduced and referred to the House Post Office Committee, provides as

Be it enacted, &c., That the rate of postage on third-class and fourth-class matter on all the rural free delivery routes emanating from the same office shall be as follows: On packages weighing 8 ounces or less, 1 cent; on packages weighing more than 8 ounces and not more than 1 lb., 2 cents; on packages weighing over 1 lb., 2 cents for each pound or fraction thereof.

Provided That the same of the result of the provided of the result of the res

Provided, That no package weighing over 10 lb. s received for conveyance under the provisions of this act.

It will be observed that Mr. Foster's bill proposes to cut the present rate on printed matter from 8 cents to 2 cents per pound, and the merchandise rate from 16 cents to 2 cents. The Postmaster-General's plan fixes a rate of 5 cents for the first pound and 2 cents for each additional pound, with an all-pound limit, making the postage on the largest package eligible for transmission for 25 cents, while the rate prescribed in Mr. Foster's bill on a maximum or 10-lb. package, would be 20 cents.

"Machine-Made" Sentiment.

The advocates of a merchandise post for rural routes are conducting one of the most active campaigns in the history of the entire movement and the opponents of this project should not close their eyes to the effectiveness of the work now being done. The daily issues of the Congressional Record bear witness to the flood of petitions and memorials that are pouring in upon the House and Senate Post Office committees in behalf of the postal savings bank bill and the Burnham rural parcel post meas-These two bills have been taken up by the parcel post boomers and are being urged in the same petitions, but it requires only a cursory examination of the files to show that the sentiment in favor of these measures is wholly "machine made" and is the product of the National Grange, Patrons of Husbandry, which maintains an elaborate organization for bringing pressure to bear upon Congress along the lines of the legislative programme adopted at its annual conventions. While the common origin of these petitions is apparent to the investigator, their great volume is impressive and cannot fail to influence opinion in Congress unless it is fully offset by the work of the retail merchants of the country.

"Merchandise Post" Rather Than "Parcel Post."

The suggestion of The Iron Age that the term "merchandise post" be substituted for "parcel post" in the discussion of these measures is very generally approved by the opponents of these schemes here. Not only is the characterization more descriptive, but, as pointed out in The Iron Age, the term parcel post is totally inadequate in view of the extent to which it is proposed to devote the postal service to the handling of freight.

Cheap Postal Notes Not Approved.

The retailers have been prompt to take the field against the provision authorizing cheap postal notes incorporated in the Joint Postal Commission's bill to codify and revise the postal laws, and already the House Post Office Committee is beginning to hear from them in no uncertain tones. The National Retail Hardware Association opposes the bill in a communication addressed to Chairman Overstreet, as follows:

It comes to us that in the bili providing for the reorganization of the Post Office Department there is recommended the
introduction of a postal check system which is aimed to encourage and facilitate the sending of small amounts of money
by mall at much less than present rates.

We as merchants believe that our present system is entirely
sufficient to cover the needs of regular business, and that the
proposed measure would mainly benefit the big mail order
houses, who are doing every thing in their power to concentrate

trade in a few cities to the injury of every small town and

merchant.

We do not believe there is any actual demand for the postal notes, except such as may have been artificially created by the lobby that was organized for that purpose.

The postal check system has been discussed at our conventions, representing 25,000 Hardwaremen, and condemned in

every instance. We wish in this connection to most heartily approve and indorse your effort to install reform and better business methods in our postal department. The bill that has been introduced has so many good features that we hope the committee will not spoil it by inserting objectionable features, such as experimental rural parcel post or postal check.

Position of the Retail Druggists.

Another organization early in the field is the National Association of Retail Druggists, which has a membership of nearly 45,000 and covers nearly every city, town and village in the country. Chairman Richardson of the Committee on Legislation of this association, has addressed a letter to Mr. Overstreet as follows:

letter to Mr. Overstreet as follows:

I beg to call your attention to a feature of the bill providing for the reorganization of the Post Office Department and the codification of the postal laws, which in the opinion of the members of this association is a very serious blemish in an otherwise highly commendable piece of legislation—namely, that part of the bill which authorizes the issuance of postal notes of denominations of \$5 and less. We sincerely hope that this feature will be eliminated from the measure before it is reported by your committee, as the bill would then command the full support of the merchants of the country, while in its present form it is a menace to many thousand retailers and to the communities in which they are doing business.

The National Association of Retail Druggists, of the Legislative Committee of which I have the honor to be chairman, has had occasion to investigate very carefully the subject of the so-called "demand" for postal notes. With a membership of 45,000, a large number of whom are either postmasters, assistant postmasters or in charge of substations, we have had exceptional facilities not only for familiarizing ourselves with the real sentiment of the public regarding this proposition, but also as to the real source of the pressure for the proposed innovation, and as the result of our investigations we beg to state respectfully, but emphatically, the following propositions:

1. There is no demand whatever on the part of the general public for a system of postal notes or for any adjunct to the present money order system, which is both cheap and efficient.

2. The so-called sentiment in favor of a system of postal notes has been laboriously manufactured by a paid lobby, as was fully disclosed at a hearing before your committee on April 26, 1906, an extract from the report of which is embraced in the hope of injuring, if not destroying, their competitors among the small order or catalogue houses have devoted years to a systematic campaign to secure the establishment of a

Cigar and Tobacco Retailers Also Lined Up.

The retail cigar and tobacco trade has also taken the matter up and is receiving the support of the principal trade organs, for the mail order houses during the past year or two have made heavy inroads on the business of the retail tobacconists, who have also suffered as the result of the efforts which a number of large cigar manufacturers have made to market their product through magazine advertising direct to the consumer. It is the hope of all these organizations that Mr. Overstreet will be willing to eliminate the postal note feature from the codification bill before it is reported to the House.

F. A. Rugg of the Rugg Mfg. Company, Greenfield, Mass., has purchased the Ball interest in the Rugg-Ball Mfg. Company, Waterville, Quebec, which has been reorganized with F. A. Rugg, president and treasurer, and F. D. Rugg, vice-president and secretary. Manufacturing will be carried on at Waterville under the local management of C. H. Williams, but office business will be transacted for the present at the Greenfield, Mass., factory, to which all communications should be addressed. company makes a specialty of the Rugg patent steel tube bow Hay Rake, but expects to add other lines, so that the output of the factory will be largely increased.

THE MARSHALL-WELLS HARDWARE COMPANY, Duluth, Minn., announces that its new Spokane, Wash., warehouse is about completed, and stock for it is now being re-

A Merchandise Post Law—Would It Be Constitutional?

We have referred repeatedly to the principal objections which hold against the proposed carriage of merchandise as mail matter, but in the communication printed below our correspondent maintains the position that such a law would be unconstitutional. Without attempting to pass on the constitutionality of such legislation we may add that the views of the writer are entitled to careful consideration, as possessing weight from his familiarity with the legal aspects of the subject he discusses. Apart from the main question, however, the facts and arguments adduced are suggestive, in view of their bearing on the general question as to the desirability of establishing a merchandise post.

To the Editor: Any law in the United States to establish a parcel post would be unconstitutional if the service at the charges fixed would not pay expenses. Congress has unquestionable authority to appropriate money for carrying mails, or to cover a deficit in the service of carrying mails and printed matter, but would not have the right to use the general funds of the Government to cover a deficit incurred in carrying merchandise. A parcel post, as a feature of the postal service, would have to be self-sustaining, and pay its share of the general expenses of conducting the service.

Reduced Rate Open to Attack in the Courts.

The cost of carrying and handling mails in the United States is so high, figured by the pound, that the proposed rate of 12 cents per round would not pay expenses. The present rate for merchandise of 1 cent per ounce, or 16 cents per pound, does not fully cover the average expense of handling a pound of mail, and it would, therefore, be improper for Congress to make any reduction. If a law providing for a reduced rate were enacted it would be open to attack in the courts, and the United States Supreme Court, in accordance with well settled principles of law in this country, would undoubtedly rule that the Government cannot engage in the business of handling merchandise, or any other commercial business, on a basis that will not pay expenses, leaving a burden to be borne by general taxation. In fact, the Government has no power to engage in any commercial

The Cost of Handling Mail.

Postal authorities and experts have never been able to agree on the cost of handling mail, or how to apportion expenses against the various classes of mail. The Postmaster-General, in a letter to Senator Burnham last 'spring, made an arbitrary estimate, in which he brought the cost of handling parcel post matter a fraction within the rate of 12 cents a pound, which he proposed; but he only allowed \$29.70 per ton for railroad transportation for an average haul of 540 miles. It is not explained how he arrived at this figure of cost. The railroads actually receive an average of more than 4 cents per pound for handling all mail, and this discrepancy disposes of the Postmaster-General's theoretical estimate.

Apparent Average Cost 16.85 Cents for Handling One Pound of Mail.

From July 1 to December 31, 1907, a period of six months, the postal authorities weighed all mail originating in the United States, spending in the work a small fortune that had been appropriated by Congress for that purpose to obtain data on which to base contracts with the railroads. During that period of six months the postal service actually handled 618,130,722 lb., net weight, of mail of all kinds, not including the weight of bags and other equipment, but including all Government mail and other free or "franked" service. The total expenditures of the Post Office Department for the fiscal year from July 1, 1907, to June 30, 1908, were \$208,351,886.15, of which one-half would presumably be spent during the six months covered by the record of weights. Dividing the total expenditure for six months by the number of pounds handled, we get 16.85 cents as the total average cost to the Government of handling 1 lb. of mail.

Actual Cost More Than 16.85 Cents.

The total expenditures reported by the Postmaster-General do not cover the entire cost of the service. The Government has expended an enormous sum of money in erecting post office buildings throughout the country, and

these expenditures are not charged against the service. The buildings are erected and maintained by the Treasury Department, which bears all the expenses of heat, light, repairs and general maintenance. In one large post office the Treasury Department has paid for \$140,000 worth of special machinery for handling mail. It is impossible to estimate the total expenses of the Government for post office buildings, which should be charged against the postal service, but it would amount to many millions of dollars, and it would undoubtedly bring the total cost of handling mail well up to an average of 20 cents per pound.

Reason Why Government Service Is So Expensive.

These cold figures make an iridescent dream of the proposals for a cheap parcel post in the United States, with rates corresponding to those that prevail in European countries. They show that the Government service in the United States is conducted at far greater expense than the service of express companies, and it is out of the question for Uncle Sam to carry merchandise at European rates. We need not seek far for the reason. Postmasters, mail carriers, railway mail clerks and other employees receive princely salaries in America, compared with the wages paid for the same service in Europe. The European mail carrier who works for \$5 or \$6 a week probably delivers more pounds of mail in a day than the American carrier, who receives a salary several times as great.

All along the line the work of the postal service is conducted by individual labor, with very little help from machinery; unlike manufacturing operations in which one American workman with machinery produces 10 times as much in a day for his good wages as the European workman can turn out for his beggarly pittance. The question of wages makes it impossible for the United States to duplicate the rates that prevail in Europe for carrying merchandise.

A Question of Constitutional Law.

European governments have unlimited legislative powers, and they can carry merchandise at a loss, or carry on any other commercial enterprise at the expense of general taxpayers, if they see fit to do so. Even in England the power of Parliament is unlimited, and the courts have no right to review or question its acts. All the Continental countries raise money by taxation, which they pay out in bounties or subsidies to one favored private enterprise or another. In the United States this is forbidden by the fundamental law of the country, as interpreted by the United States Supreme Court and the highest courts of the States. This is one illustration of the fundamental difference between the powers of government in Europe and the United States.

Why Uncle Sam Carries Mail.

The general impression is that the postal service of the United States was established primarily to fetch and carry things for the people. This is not wholly true. The postal service is primarily an agency of the Government which it uses in carrying on the business of the Government; and to-day the Government's own mails aggregate 10 times as large a volume as those of the largest corporation or mail order house. Going back to the origin of the post office, we find that the settlers who left the seaboard and went back into the wilderness did not have any imperative need to carry on correspondence with the older settlements. It was imperative, however, that the Government should maintain close and constant communication with its officials and military authorities who followed and protected the pioneers.

The Carrying of Private Mail Began as an Incident

in the service of the couriers who carried Government dispatches. At the present time the Government must maintain an enormous volume of correspondence with its officials, agents and employees in all parts of the country. Correspondence with the secret service, and with the district attorneys of the department of justice who prosecute crime, could not safely be intrusted to prvate agencies, and many other branches of Government correspondence are of the same highly confidential character. The Government is confronted by the necessity of maintaining a postal service for its own use, and the service it performs for citizens has grown up as a large incident of this primary service.

Mail Can Be Carried at a Loss.

There was a deficit of about \$17,000,000 in the postal service in the year ending June 30, 1908. This does not raise any question as to the right of the government to maintain postal service, although it stands in the way of any undertaking to carry merchandise. If the government had paid postage on its own mail at the average rate paid by the public the deficit would have been covered. Aside from this, however, the government could carry letters and printed matter if the rates did not pay half the cost of the service.

The Foundation of Our Government Rests Upon the Education and Intelligence

of the individual voter, and the government can collect an unlimited amount of money by taxation and expend it for the purpose of broadening and strengthening the foundation upon which it stands. If the people during the past century had paid 20 cents per pound postage on their newspapers and other publications no one can estimate how far we would have fallen short of the present progress and attainments of the nation; because intelligence is the mainspring of all the enterprise and initiative that makes a people great and progressive. Without our mail service that has brought the great newspapers and other publications within the reach of the humblest workingman, general intelligence would be monopolized by an aristocracy of wealth, and the power of government under universal suffrage would be in the control of illiterate voters. To promote intelligence is the noblest work of a free government.

Carrying Merchandise Is Commerce.

The carrying of mails is a public service which promotes the welfare of the people, but the carrying and distribution of merchandise is commerce, an entirely different proposition. The Constitution gives to Congress the power to "regulate" interstate commerce, but not the power to engage in and carry on commerce. The men who wrote the Constitution would have recoiled in horror from the thought of establishing a national government to carry on the business of the people or any part of it. Only a limited amount of authority was delegated to Congress by the people, and the Constitution expressly says that all other powers are reserved to the States or to the people. Congress cannot levy taxes on property. The States have unlimited powers of taxation, but Congress is limited to excise and customs duties. The purposes for which Congress can spend money are strictly limited by the Constitution and are far more closely circumscribed than the powers of the States.

Private Enterprise Cannot Be Subsidized.

There are literally hundreds of decisions by the United States Supreme Court and by the highest courts of the States which define and limit the purposes for which public money may be expended to promote commercial enterprises. It is the law of the land, universally followed in these court decisions, that a municipality, a county or a State, or even Congress, may appropriate money in aid of a railroad, because a railroad is a highway, and there is a public benefit from its construction, but money raised by taxation cannot be used in the aid of any private enterprise.

During the past 20 years, for example, a number of States, including New York, Michigan, Nebraska and others, appropriated money to pay bounties on beet sugar produced in their respective States, but all these laws were held unconstitutional because public money cannot be used in aid of private enterprise. It is true that in

the McKinley tariff Congress provided for the payment of a bounty on sugar and this bounty was paid, but the Supreme Court had no opportunity to pass upon the constitutionality of the law because no suit was brought to test it. This was the only instance in the history of the government when a bounty was paid from public money in aid of private enterprise.

It may be of interest in this connection to say that the Supreme Court has never had the opportunity to say whether a prohibitory tariff duty is constitutional. A tariff duty, however, is not a bounty, in the sense of calling for payment of money from the public treasury. It is primarily a tax to raise revenue for the government.

No State Could Appropriate Money to Aid a Mail Order House.

Although the States have broader legislative powers than Congress, no State could appropriate money to aid a mail order house or any other private enterprise, or to pay a part of the expense of carrying on the business. The United States Supreme Court in a famous decision that has stood the test of years has declared that this would be an abuse of the power of taxation that would violate the fundamental and "reserved rights of the people." Even where the State constitution does not forbid it a legislature, which has broader powers than Congress, cannot levy nor authorize taxes in aid of private enter-

A Decision of the U. S. Supreme Court.

In 1874 the United States Supreme Court considered this question fully and rendered a decision which is a landmark in the history of free government. The Legislature of Kansas had enacted a law authorizing counties and municipalities to provide bonuses in aid of manufacturing enterprises, and to issue bonds and levy taxes for that purpose. The city of Topeka issued \$100,000 in bonds in aid of a local manufacturing enterprise. After these bonds had been sold to innocent purchasers, including a savings bank, and interest coupons had been paid, the question was taken to the United States Supreme Court, and that great tribunal held that taxes could not be levied to pay the interest or the bonds. There was nothing in the State constitution to forbid it, and the Legislature had expressly authorized it; but the supreme tribunal held the law and all transactions under it invalid, because "the taxes necessary to pay the bonds would, if collected, be a transfer of the property of individuals to aid in the projects of gain and profits of others, and not for a public use in the proper sense of that term."

Limitations of the Power of Taxation.

In reviewing the case, the United States Supreme Court said:

It must be conceded that there are rights in every free Government beyond the control of the A Government which recognized no such rights, which held the lives, the liberty and the property of its citizens subject at all times to the absolute disposition and unbounded control of even the most democratic depository of power, is after all but a despotism. It is true it is a despotism of the many, of the majority if you choose to call

it so, but it is none the less a despotism.

The theory of our Governments, State and national, is opposed to the deposit of unlimited power

anywhere.

Of all the powers conferred upon Government, that of taxation is the most liable to abuse. Given a purpose or object for which taxation may lawfully be used, and the extent of its exercise is in its very nature unlimited. This power can as readily be employed against one class of individuals and in favor of another, as to ruin one class and give unlimited wealth and prosperity to the other, if there are no implied limitations of the uses for which the power may be exercised. To lay with one hand the power of the Government on the property of the citizen, and with the other bestow it upon favored individuals to aid private enterprises and build up private fortunes is none the less robbery, because it is done under the forms of law and is called taxa-tion. This is not legislation; it is decree under leg-islative forms. Nor is it taxation. Beyond a cavil there can be no lawful tax which is not laid for a public purpos

Citizens' Saving and Loan Association vs. Topeka City,

While this case was on the technical question of the

right to levy a special tax in aid of private enterprise, all the reasoning of the court

Applies with Equal Force to Any Appropriation of Public Money 10 aid of private enterprise. The individual citizen has little or no interest in the parcel post, because he rarely sends merchandise by mail. The interested parties are a relatively few persons, firms or companies that make a business of sending merchandise throughout the country in small parcels. They want the Government to subsidize them by contracting to carry their stuff in the mails at less than cost. They seek "to lay with one hand the power of the Government on the property of the citizen, and with the other bestow it upon favored individuals to aid private enterprises and build up private fortunes."

Shippers Already Protected by Law.

If the railroads or express companies are charging too high rates for carrying small parcels, the Government has already done all that it can do, all that it has a right to do, to protect this class of shippers. Congress has created an Interstate Commerce Commission, which has been clothed with summary powers to fix "reasonable" rates for freight or express service. These common carriers cover the entire country with their vast commercial organizations. There is no lack of facilities to-day for carrying merchandise, corresponding to the lack of facilities for carrying mails when the postal service was established. The commission cannot force these economically organized agencies to carry merchandise at less than cost, but it has ample power conferred by the Government to prevent them from charging more than a reasonable return for the expense and the capital employed. If any mail order shipper thinks their rates are too high he can invoke the full power of the Government for his protection by merely filing a complaint with the Interstate Commerce Commission. Congress has power, under the Constitution, to "regulate" interstate commerce, but not the power to engage in commerce.

The Proposed "Rural Parcel Post"

A scheme has been advanced that the Government should establish a rural merchandise service at low rates, to be strictly limited to residents or merchants on the route of the rural carrier. The wicked mail order houses would be barred out by a clause in the law forbidding them to use the service. If Congress had the power to establish such local service the courts would make short work of any discrimination against citizens, persons or companies. Whoever paid the required rates for the service would be entitled to use it, regardless of race, color or commercial affiliations. But

The National Government Has No Power or Right

whatever to engage in local commerce within any State. It cannot even "regulate" such commerce, which is subject solely to the laws of the State in which it is carried on. If the National Government could project itself down into a State and carry on a drayage business within the State, it might monopolize the business of hauling the farmer's grain to market, run the grist mill, the blacksmith shop, and provide a bootblack to shine the farmer's shoes when he comes to town. It might also, like the despotic government of Russia, conduct the community wanted a "vodka shop." From the point of view of constitutional government in the United States, this scheme is too fantastic for serious consideration.

Congress Cannot "Speculate."

The argument may be advanced that a parcel post law would increase the tonnage of mail and ultimately reduce the cost of the entire service to the amount charged for merchandise. Any business man can invest capital in a speculative venture based upon his judgment of prospective returns. But Congress is doing business with other people's money, and the Constitution gives it no authority to speculate in commercial enterprises with this money. It can do what it pleases in fixing rates on letters or printed matter, and as an incident of the service may carry very small parcels, as under the present law; but even if it be permissible for the Government to engage in commerce, Congress cannot speculate with public money, by establishing a losing business in the hope that some day it may pay a profit.

CHICAGO, January 14, 1909.

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THE TARIFF DUTIES ON FILES.

The Nicholson File Company Testifies Before the Ways and Means Committee.

THE Ways and Means Committee on the 15th inst. gave a hearing to Samuel L. Nicholson, president of the Nicholson File Company, Providence, R. I., the object being to obtain information concerning the File industry, and particularly to ascertain the facts regarding certain allegations made to the committee by Herbert E. Miles, Racine, Wis., regarding the sale of Files and other articles for export at much less than domestic prices. Chairman Payne stated the object of the hearing as follows:

H. E. Miles appeared before the committee on December 11, and made a statement concerning an invoice of Files which he said was a copy of the original, and showing a bill for Files manufactured here and sold abroad, where, accordfor thes manufactured here and sold abroad, where, according to the statement, the price made for export was \$193.28, and the duty on the invoice, if those Files had been imported into the United States, or similar Files had been imported, would have been \$248.75. The inventory is here in the hearings, and you may look it over if you have not seen Mr. Miles' statement.

Mr. Nicholson replied that he was familiar with the general scope of the charges made by Mr. Miles, and upon being requested to reply thereto in his own way, said:

This company was incorporated in 1865, and up to 1891 we confined the entire marketing of our product to America. Since 1891 we have endeavored to get a portion of the world's trade. In seeking that trade we have met conditions as we have found them, varying in the different countries of the world. The standard list—all Files are sold on a price-list is the old Sheffield list, which seems to be in universal use throughout the world outside of the United States. That list was made up in the forties, and on a basis largely of hand work, the cost of hand work, and it never has been changed.

Now, in order to introduce our Files, we have to sell on that list, which is not at all consistent with the American cost, at all events of Files; in other words, some Files on that list that we are obliged to furnish may go into a man's store in Hongkong or in Birmingham or anywhere else, and some of the Files on that list would figure out as Mr. Miles has undoubtedly stated. And where it appears to the advantage of the dealer or jobber to discriminate in his purchases—that to buy from us a certain line that will be to his decided advantage—why, the duty would figure out probably in the neighborhood of what Mr. Miles has said, although I think his statement is a little confusing in that he, as I understood it, said that this particular invoice that went through a New York export house was some 45 per cent. higher in cost than a consumer was forced to pay in this country.

Now, the jobber who buys those Files on the other side at

this price resells to the dealer, and the dealer resells them to the consumer. There are two margins of profit. The consumer in this country is not supposed to buy as low as first hand. There may be exceptions to that, like the large rail-roads or the Government, but as a rule the consumer does not expect to buy his supplies at as low a price as the large distributer.

There is another factor that enters into that. When we started to develop our export business we found that there was a variation in the selling prices of American Files, ranging anywhere from 20 to 30 per cent.; that is, the concern that had produced standard Files for a term of years and had produced more good high grade product, and thereby had earned a reputation with the consumer, its Files were called for and the dealer had to keep them; and it made a difference in price which gradually grew, as I say, to a difference of 25 to 30 per cent, as compared with the lower cost of manufacturing Files in this country. Perhaps I did not make myself clear, but it is all reputation.

Chairman Payne cross-examined the witness at some length, in part, as follows:

The Chairman: When you sell Files abroad, whom do you sell them to?

Mr. Nicholson; The largest distributers. We sell direct. The Chairman; The largest distributers abroad? Do you sell them in wholesale quantities when you sell abroad, and make wholesale prices?

Mr. Nicholson: Yes, sir.
The Chairman: And when you sell Files here, to whom
do you sell them? Do you sell them to the large distributers
and to the small dealers?

Mr. Nicholson: Not to the small dealers as a rule. We do not cater to that trade.

The Chairman: Then you sell to the large distributers

Mr. Nicholson: To the large distributers here.

The Chairman: Then, so far as the class of people who is concerned, it is similar in both countries? buy

Mr. Nicholson: No, sir; because in this country, due to the competition which we have absorbed from time to timecertain competition-we found those factories selling to large consumers and to medium consumers. Those particular Files had a certain reputation and were called for, and we continued to supply those, meeting the same conditions that we encountered.

The Chairman: You have a regular price-list, I believe, Nicholson

Mr. Nicholson: We have a regular price-list here in

The Chairman: Does that run through a good many

Mr. Nicholson: Yes, sir.

The Chairman: And the price per dozen varies according to the length of a File of a similar class?

Mr. Nicholson: The length and the grade. Mr. Chairman, there are 3500 varieties of Files.

The Chairman: Is that all?

Mr. Nicholson: Carried in stock. We probably make 6500 varieties of Files to meet the demands.

The Chairman: Have you a catalogue of prices that cover the total product.

Mr. Nicholson: I have not a catalogue, but I have a few Files here, and I have a price-list. Will you pardon me one minute, Mr. Chairman? I wanted to say that the Nicholson File on which we had built up a reputation in this country that enabled it to have a demand that paid us 20 or 25 per cent. more for our Files than those of other American makes, that was the File that we selected to push for certain markets of the world, believing that if we once got that File introduced it would stand on its own merit, and that we could possibly advance prices over there. That business we were willing to do, and have been up to this time, and probably few concerns in America have gone for that class of trade any more earnestly than the Nicholson File Company. I mean to say that the machinery that we have in our business and the system of conducting and directing foreign business throughout the world will compare favorably with any system in any other American factories.

Now, what has antagonized us perhaps, and I call it antagonism, with these New York houses, is the fact that we have selected good, smart men-college men in every stance—trained them in our factory, and sent them from our factory to almost every civilized part of the globe, representing only our product and introducing our product. We taught them alone. We have gone back of the New York commission house crowd, although we are as friendly with those people as we can be; we do more or less business with But you can readily understand that in establishing our connections direct with, say, Buenos Aires, Melbourne, St. Petersburg or elsewhere, we did not have to depend upon these people for financing bills and pay them premiums, but we took the chances ourselves.

The Chairman: What brought your success in building up that foreign trade:

Mr. Nicholson: Well, sir, it has been in every instance successful.

The Chairman: You hold a good sized trade?

Nicholson: Yes, and a growing trade up to a year ago. Of course, not alone because we have entered their markets but because other progressive nations have entered the markets, and these foreign countries are fast adopting our methods of protecting and building up and fostering their own industries.

The Chairman: In other words, you have to pay a tariff when you sell abroad?

Mr. Nicholson: We are beginning to pay a tariff and at is beginning to shut us off. For instance, I will give Mr. Nicholson: We are beginning to pay a tarin and that is beginning to shut us off. For instance, I will give you one illustration: The year before last we probably sold \$70,000 worth of Files in Japan. It does not seem very much, because the industry is small. You must understand that this is a small edged tool industry, and it does not go into values heavily. But we sold \$70,000 worth in Japan, then they introduced a protective tariff. The Government's instructions were to foster their own industry, to demand them in their shops, and the railroads were espe-cially requested to do it. The result was that they put up with inferior goods, and are still doing so, although they are

growing, and are introducing our methods of machinery and system, and in time will starve out our business. Our business has been reduced this year. I do not suppose we will sell to exceed \$8000 worth in Japan.

The Chairman: How does their rate of duty compare

with ours?

Mr. Nicholson: It is lower, but they are in their infancy

The Chairman: What is the percentage of their duty,

their ad valorem duty, compared with ours?

Mr. Nicholson: Roughly, I should think that their duty did not exceed 25 per cent. of ours, but this is their first

attempt at a duty.

The Chairman: You find a tariff on these articles in Germany and France? Mr. Nicholson: O

Mr. Nicholson: Oh, yes.
The Chairman: Have you any trade there?

Mr. Nicholson: Well, we have had considerable trade in h of those countries. We find it more difficult to retain both of those countries. that trade now. Our Files, you understand, Mr. Chairman, are like a razor; if the consumer demands them he rather sticks out and calls for them and forces the trade to keep them. Now we have established, after 15 to 20 years in those countries, a certain reputation, and that reputation will create and make a demand for our Files to some extent for some time.

The Chairman: You make the Files now by machinery entirely, so far as the cutting is concerned, do you not? Mr. Nicholson: Yes, sir.

The Chairman: And also those Files that are used by

The Chairman: And also those Files that are used by blacksmiths and so forth. You make those by machinery?

Mr. Nicholson: Yes; all of the processes.

The Chairman: Of course there has been a reduction of cost in that respect, has there not; the labor cost?

Mr. Nicholson: The labor cost, Mr. Chairman, has probably not been reduced, but has advanced from 3 to 8 per cent., I should say, within the last five or eight years.

The Chairman: Was that on account of the high wages?

Mr. Nicholson: It is both on account of the high wages and the fact that you cannot get the work per day out of the

and the fact that you cannot get the work per day out of the laborer or the job worker. He is not the efficient workman that he was five or seven years ago.

The chairman, assisted by several members of the committee, undertook to ascertain the relation between imports and domestic production of Files, the examination being as follows:

The Chairman: What is the total consumption in this country'

Mr. Nicholson: I should think about \$7,000,000 worth a

The Chairman: The total imports in 1906 were, you say, about \$80,000 worth for this style of File-no, a little less than \$80,000—\$76,777; but in 1907 they were in excess of that. We find a large excess of imports of every kind in that year. So that pretty much all of the importations of Files into this country is in these small sizes, is it not? Mr. Nicholson: Yes, sir.

The Chairman: And upon the others you have an absolute market!

Mr. Nicholson: The American manufacturers have; yes,

Mr. Underwood: How do you describe this File under the present tariff law; under what subdivision does it come? Mr. Nicholson: Under the first and second clause, 2½

in. Files and under. Mr. Clark: If you are right in your answer and the chairman is right in his figures, then the importation of

Files into the United States only amounts to 1 per cent., unless I have forgotten the multiplication table.

Mr. Nicholson: It is not far away from that; 1 to 1½ per cent.

Mr. Clark: That comes very near being a prohibitive

tariff, does it not, as it is?

Mr. Dalzell: You have the American market, excepting for the small Files?

Mr. Nicholson: Yes, sir.

The members of the committee manifested a very lively interest in the difference between the list prices in the File industry and the net prices, a feature of manufacturing which appeared to be quite novel to the chairman and all his colleagues. Mr. Nicholson explained that on a certain 24-in. File the list might be \$14, from which the discount would reduce the price to a net of about \$3. His examination by the committee on this point was as follows:

Mr. Cockran: You represent in your circular a price of \$14, and that you say is to cover the operations of three different persons in getting it into the market—to compensate them?

Mr. Nicholson: You understand, Mr. Cockran, that we never get that \$14.

Mr. Cockran: What becomes of it?

Mr. Nicholson: It is absorbed in the discounts, Mr. Dalzell: Fourteen dollars is the list price, with cer-

Mr. Cockran: Does \$14 represent what the consumer pays for it?

Mr. Nicholson: Never. The Iron Age, which goes all over the world perhaps, contains prices with discounts of 70, three 10's and 2 per cent. on the high grade File from the standard list, which is the only list known.

Mr. Cockran: I cannot for the life of me see the use

Mr. Dalzell: It is simply a basis for all parties to work from and no doubt is justified because the discounts are

Mr. Cockran: But what is the point in giving these different discounts?

Mr. Gaines: As a matter of fact, what price does the retail purchaser of this \$14 File generally pay?

Mr. Nicholson: The consumer?

Mr. Gaines: Yes, the retail buyer; not the retail merchant, but the man who buys the File. Take a blacksmith who buys a dozen of these Blacksmith Rasps, what will he play?

Mr. Nicholson: He will pay that list price with something deducted. I should think that you can send down to any of these Hardware stores in town, and I think they would sell you that File not higher than 60 per cent. off. I think they would give you at least 60 per cent. off this

Mr. Clark: Then what sense is there in such a performance? I can understand very readily how you could have \$3 for yourselves and \$14 for the retailer, and so fix the price all down the line. That is perfectly intelligible and it might be reasonable. But now, if nobody is to charge this

\$14, then what is the sense in putting it upon the list?

Mr. Nicholson: Well, I presume that is the custom. On most lines of American manufacture you see the same thing. In some lines there are greater discounts than that.

Representative Boutelle read to the witness an extract from the testimony of Mr. Miles, in which he referred to the Nicholson File Company as the "File trust," and demanded to know whether any one beside Mr. Miles charged the company with being a trust. Mr. Nicholson's testimony on this point was as follows:

Mr. Nicholson: We have been accused of being a File

trust by enemies.

Mr. Boutell: Have you ever been proceeded against by competent legal authority? any

Mr. Nicholson: No, sir. Mr. Boutell: To be dissolved as a trust?

Nicholson: No, sir; never have heard of it.

Mr. Boutell: Are you a trust? Mr. Nicholson: What is a trust?

Mr. Boutell: I ask you. I am trying to find out whether are one. It is a process of elimination.
Mr. Nicholson: If we are, I think we are a good trust. you are one.

Mr. Boutell: You recognize the authority that there may be bad trusts?

Mr. Nicholson: Yes. Mr. Boutell: If you are a trust, you are good? Mr. Nicholson: Yes.

Mr. Boutell: That is, if you are a trust, you are a good

Mr. Nicholson: I think so. Mr. Boutell: Your bitterest enemy has not accused you

Mr. Boutell: Your bitterest enemy has not accused you of controlling the entire File business of the United States?
Mr. Nicholson: No, he could not very well.
Mr. Boutell: So that the insinuation there that the Nicholson File Company of Providence, R. I., is a trust, is a mere expression of opinion on his part, and the insinuation that you control the entire File business of the United States. tion that you control the entire File business of the United States is incorrect?

Mr. Nicholson: Incorrect. Mr. Boutell: That is all.

A Brief on Behalf of American File Manufacturers.

Upon the conclusion of his testimony Mr. Nicholson obtained permission from the committee to file a brief on behalf of the domestic manufacturers of Files, as follows:

To obtain your aid and co-operation in the readjustment of the present duties on Files and Rasps, facts are presented herewith by the Nicholson File Company of Providence, R. I., and although not authorized to represent others in the same industry, we believe the request made hereinafter is entirely in accord with the view of all American

File and Rasp manufacturers.

We request and suggest that the "tariff act of 1897," paragraph 156, under heading of "Manufactures of iron and steel," be amended by granting an advance in classes 1 and 2, which now read as follows:

And further that no special classification be made for

Reason for Revision.

The tariff on Files, File Blanks, Rasps and floats of all cuts and kinds, beginning with the—

Tariff act 1883:	Per dozen.
4-in. and under	\$0.35
Over 4-in. and under 9-in	
Over 9-in, and under 14-in	1.50
14-in. and over	2.50
Tariff act: 1890:	
4-in. and under	
Over 4-in, and under 9-in	61
Over 9-1b. and under 14-in	1.30
14-in. and over	2.00
Tariff act 1894:	
4-in. and under	
Over 4-in, and under 9-in	60
9-in. and over	
Tariff act 1897, revised to July 1, 1902 (present l	law):
Class 1. On 21/2-in, and under	30
Class 2. Over 21/2-in. and not over 41/2-in	50
Class 3. Over 4½-in, and under 7-in	
Class 4. 7-in. and over	1.00

The present tariff affords the least protection for Files and Rasps of any of the laws that have been in force since 1883, with the exception of the act of 1894.

The home manufacturers have for 25 years been striving to sell the Files of the Swiss pattern and the small regular pattern Files, $4\frac{1}{2}$ in. and under, used extensively by watchmakers, manufacturing jewelers, and by the makers of very fine tools and instruments.

The statistics compiled by the United States Government show each year large importations of small Files, as per classes 1 and 2, from Switzerland, England, Germany and France. From such information as we can secure it appears certain that the foreign makers sell in the aggregate in this country more in value of these small Files than do the American manufacturers. Each time the tariff has been adjusted we have asked for increased protection on classes 1 and 2, and this we again respectfully request; while classes 3 and 4 find very scant protection under the present tariff, a protection that in the near future may prove insufficient by reason of the advantages in manufacture recently secured abroad, as hereinafter cited.

With the increase granted on classes 1 and 2 it should

With the increase granted on classes 1 and 2 it should be possible to employ more workmen, while any reduction in the tariff would necessitate a reduction in wages paid and probably less workmen employed.

Labor the Principal Cost Item.

Labor, mostly skilled, constitutes the major portion of the cost of manufacture; this item alone, as compared to the cost of material entering into the File or Rasp, ranges from 3 to 150 times the cost of the steel, depending on the size and cut of the File. This is clearly shown by the fact that each File or Rasp is handled no less than 164 times in the different processes before finished.

Other than labor, the items of expense are fuel (coal and fuel oil), grindstones, belting, oils, and miscellaneous supplies, and the items of repairs, expense and the general expenses of maintenance, selling, &c., the cost of which items in the United States are undoubtedly much in excess of similar costs abroad. The labor employed is largely skilled, although, of necessity, there is a small percentage of helpers and laborers.

The present scale of wages paid by the Nicholson File Company, which corresponds with those paid by other American makers, is as follows:

					Per	day.
Laborers and	helpers.	 	 	 	 \$1.40	to \$1.80
Skilled works	nen	 	 	 	 2.40	to 4.25

We have been unable to secure prices paid for similar labor in like factories abroad, but have been given to understand that in every instance they are perceptibly less than paid in the United States.

when it is considered that there are at least 6000 to 7000 varieties of Files made and called for, and that to supply the ordinary demand as many as 3500 kinds and cuts are regularly carried in stock, it is clear that the industry is one requiring skill and infinite detail.

Development of the Industry.

Prior to the year 1861 the American market was almost exclusively supplied by the foreign makers. With the introduction of the protective tariff the American mechanic was placed in a position to compete for the trade of this country, and after 12 to 15 years of toil and effort the machine made File had become so serviceable as to be preferred

to the foreign hand made article.

Under the protective laws the industry has grown and now gives employment to approximately 6500 persons, representing a large capital invested, devoted exclusively to this business. The plants of the machine File makers are located in the States of New York, Pennsylvania, Massachusetts, Ohio, Indiana, Illinois, Connecticut, New Jersey, Wisconsin and Rhode Island.

The most progressive nations known to be large producers of Files and Rasps are the English, German, Austrian, French, Swiss, Russian, Belgian, Swedish, and, more recently, the Japanese. These within a comparatively recent period have equipped their plants with the most modern File making machinery, giving them an advantage not be-

fore theirs and changing the relative conditions. In addition, a protective tariff is in force in most of these countries. This with the very low labor cost prevailing and with the most improved machinery and American methods, finds the present competition extremely keen.

The advantage of improved methods and machinery is most apparent by reason of the fact that prices have been lowered perceptibly during the last 12 months in many foreign countries.

Tariff Reduction Would Be Destructive.

Any reduction in tariff would unquestionably open the American market to the foreign manufacturer and would make it impossible for the home maker to compete, if the present scales of wages paid in this country be maintained, and would inevitably result in the enlargement of the foreign makers' plants, giving employment there to a larger number of workmen, thereby of necessity decreasing the number employed in this country, and with the increased production further reducing the cost of the manufacture abroad, giving this permanent additional advantage to the detriment of American labor and capital.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

Toledo Screen Company, successor to William Peter estate, Toledo, Ohio: Catalogue devoted to Peter Screens for doors and windows, which are referred to as being of the best quality that modern machinery and skilled mechanics can produce. The company is now under the direct management of A. J. Cone.

ERIE SPECIALTY COMPANY, Erle, Pa.: Folder illustrating Sundae Ice Cream Dishers, both cone and bowl shape, with and without center, which makes an indentation in the cream to hold a cherry or other fruit.

ARROWSMITH CONCRETE TOOL COMPANY, Arrowsmith, Ill.: Catalogue devoted to Concrete Adjustable Handle Finishing Tools for sidewalks, curb, gutter and other work of this kind.

LOVELL MFG. COMPANY, Erie, Pa.: Catalogue relating to the company's Anchor and other brands of Clothes Wringers, also Mangles, Mop Wringers and Folding Benches. The company refers to the fact that it has greatly improved the quality of Anchor Brand Wringers.

Knapp & Spenceb Company, Sioux City, Iowa: Insert pages for the company's loose leaf catalogue, covering a variety of goods.

CORTLAND FORGING COMPANY, Cortland, N. Y.: Catalogue relating to Bow Sockets, Shifting Rails, Top Joints, Canopy Top Standards, Arm Rails, Special Top and Body Irons, Carriage and Automobile Tops.

CRESCENT TOOL COMPANY, Jamestown, N. Y.: Catalogue devoted to adjustable Wrenches, Combination Pliers, Lineman's Pliers, Extension Bicycle Handle Bar Stems, &c.

WARD FENCE COMPANY, Decatur, Ind.: Catalogues, Nos. 85 and 150, illustrating ornamental Wire Fence and Gates, Wrought Iron Steel Picket Fence and Gates, Diamond Mesh Farm and Poultry Fence, Gates of all kinds, &c. During the past year the company built and equipped an up to date Fence plant.

ENTERPRISE ENAMEL COMPANY, Bellaire, Ohio: Catalogue of Enameled Ware, Roasters, Churns, Decorated Toilet Sets, &c.

Barnes Mfg. Company, Mansfield, Ohio: Spraying Pump catalogue No. 2, including a number of new styles of Spray Pumps added during the past year. In the back of the book is a mass of useful information for fruit growers relative to the different diseases of trees and how to detect and cure them.

MILTON MFG. COMPANY, Milton, Pa.: Booklet especially devoted to large Nuts. The company remarks that these are the result of years of specialized effort, and that it has worked and experimented with a view to developing a Nut, which would meet all the requirements of builders of Engines and other highly finished machines.

AUSTRALIAN NOTES.

Melbourne, December 7, 1908.

DURING the past month there has been a steady trade in general Hardware throughout the Continent, building lines still continuing particularly brisk. Fencing Wire and Wire Netting have both been in good demand. Our staple industries, taken as a whole, are in an exceedingly flourishing condition, and the outlook for the coming year may be regarded as eminently satisfactory.

A Record Wheat Harvest

is assured for the season 1908-1909. It will be double the yield of last year. Official estimates of this nature are usually under rather than over actual results, and the official estimate for the coming season is 24,000,000 bushels for Victoria. If this is realized—and there seems scarcely the faintest possibility of its not being realized—the surplus available for export from this State of Victoria will be over 15,000,000 bushels. The railroad department is already busy making its arrangements for rapid transit to the seaboard. The payments to be made to the farmers during the first two months of 1909 will have an immediate effect in relaxing the tightness of money, which has been rather a feature of country trading during the past 12 months.

The South Australian harvest is also expected to reach 24,000,000 bushels. In New South Wales, however, owing to less favorable weather conditions, the harvest will not exceed 15,000,000 bushels. Taking the Continent as a whole, the yield will be from 60,000,000 to 65,000,000 bushels, as against 45,000,000 bushels last year.

Imports and Exports.

Commonwealth imports for the 10 months ending October 30, 1908, were £40,148,000, while exports of merchandise totaled £34,720,000, to which must be added nearly £12,000,000 for exports of gold and specie,

Harvesters.

The price at which complete Harvesters are being sold in Australia has again been under review in the House of Representatives. T. Robinson & Co., a Melbourne firm, gave evidence that for a 4 ft. 6 in, to 5 ft. Harvester they charged £70 cash, or £85 on a three years' purchase. Their selling expenses worked out at about 22 per cent. all round. The subject came under review owing to the fact that the price fixed in the Excise Tariff act was £65, and local manufacturers unite in saying that they are unable to sell at this price and pay Australian rates of wages.

Rabbit-Proof Fencing.

Two thousand miles of rabbit proof Fencing sounds a rather large order. But it is only a drop in the bucket of Australia's past and present needs in this line. This one little experiment, however, has proved unavailing in stopping the westward march of our national nuisance, the rabbit. His wonderful productiveness, while it has called new industries into existence, has proved a strong deterrent to the more lucrative industry of sheep raising. Some years ago The Iron Age chronicled "bunny's" march from the east to the west coast of Australia. Despite rabbit proof Fencing, rabbit trapping and the ravages of bunny's natural enemies, the eagle, the hawk, the crow and the iguana, whose daintiest dinner is a litter of baby rabbits; despite these drawbacks, backed up by long periods of drought over various parts of the continent, bunny continues to thrive throughout the whole land. The barren country west of Spencer's Gulf and Lake Torrens, which for many years absolutely defied exploration, has been successfully negotiated by the rabbit.

Some few years ago the Westralian Government, in an effort to save their State, erected three rabbit proof fences. The first, 1140 miles long, extended from Starvation Harbor, between Esperance and Hopetown, north to the Ninety Mile Beach, between Broome and Shell-borough, on the Indian Ocean. It is of 42 in. x 1½ in. mesh, 6 in. in the soil, and 12 in. coated with tar and kerosene, fitted to posts 13 ft. apart. A 13-ft. hack was made alongside, and the job done thoroughly. The fence has withstood fires and floods, horned stock and kanga-

roos, but not the rabbit. They were turned north and traveled faster than the fence builders. So another fence was built, starting 60 miles west of the first. It ran north 500 miles and then curved northeast to join fence No. 1. This took in 16,000,000 acres of good sheep country, but again proved valueless. So a third fence, 170 miles long, was made to run westward to the Indian Ocean, 50 miles north of Gualdton.

These fences cost £350,000, and the Government is spending over £12,000 a year in maintaining them. And yet bunny is still advancing westward. He will never be extirpated until such time as the whole country is fenced off into manageable allotments. And so, for very many years to come, the Australian demand for rabbit proof Wire Netting will be a huge and steady one.

And almost the whole of it comes from Britain and Germany! Why?

Wringer Roll Repair Schedule.

HE American Wringer Company, Woonsocket, R. I., and 99 Chambers street, New York, has just issued eight-page pamphlet relating to Wringer Rolls for repair purposes, containing compact, valuable information on what has always been a difficult and an annoying part of the business. It is designed to inform both wholesaler and retailer, but is particularly serviceable to the latter, who has to satisfy the consumer, in ordering correctly and getting quickly the right rolls in a large line. It has frequently occurred that merchants have told customers they had not the right rolls in stock, when they had but didn't know it, thus duplicating stock on hand with attendant unnecessary express charges, there having been heretofore no system for identification of the rolls. Now a designating number is stamped on the end of each roll, which by consulting the schedule indicates at once all the various Wringers it may be used on. The numbers range consecutively from 10 to 39, inclusive, some numbers being applicable to as many as 41 different Wringers. The qualifying number is printed at the head of a column, with dimensions of roller, followed beneath with number and trade name of the particular Wringer it will fit.

Aluminum Pans.

The Geuder & Paeschke Mfg. Company, Milwaukee, Wis., is offering a line of aluminum pans, which are especially recommended for meat packers within abattoirs. They are described as strong and durable, easily handled, quickly cleaned and not subject to corrosion. It is also claimed that they will not taint the meat, and that they will neither chip nor crack. They are made in four sizes—Nos. 14, 17, 21 and 30—the respective dimensions of which are $16\frac{1}{4}$ x $5\frac{1}{2}$ in., $17\frac{3}{4}$ x $5\frac{5}{6}$ in., $19\frac{1}{2}$ x 6 in., $21\frac{1}{4}$ x $6\frac{1}{4}$ in.

The K. & J. Barrel and Truck

The Kilbourne & Jacobs Mfg. Company, Columbus, Ohio, is manufacturing the barrel and truck herewith



The K. & J. Barrel and Truck.

illustrated. The barrels are equipped with malleable iron trunions, riveted a little above the center to permit a barrel containing as much as 1000 lb. to be dumped easily

while on the truck. The truck handles, braces and axles are made of steel, while the trunion supports and hand holds are malleable iron. The truck is well braced, and is referred to as being very strong.

The Ing-Rich Hitching Post.

The Ingram-Richardson Mfg, Company, Beaver Falls, Pa., is placing on the market the hitching post shown



The Ing-Rich Hitching Post.

herewith, to which a suitable mail box will be attached when desired, made of heavy sheet iron. The mail box would be suitable for use in rural districts and also in small towns. The post is constructed of a steel angle of more than usual thickness, 6 ft. long, with a neat ornamental casting on the top. Just below the casting is placed a substantial cast iron bracket to which is attached one of the company's porcelain enameled iron name plates. The name plate, or sign, is referred to as being genuine enamel, with blue ground and white lettering, and as guaranteed not to fade, scale or tarnish, and as absolutely rustproof. The sign being separate from the post, a person may change the sign when necessary or in case he should move to another district. When placed along the highway the post assists a traveler readily to locate residences or farms. A few inches below the name plate a ring is

attached for hitching purposes. The entire post is treated with a thorough coating of the best black paint. The idea is to imbed the post in concrete, making a substantial and lasting combination, or the company will furnish a cast iron anchor at a small extra charge.

Rhodes Double Cut Pruners.

The Rhodes Mfg. Company, Grand Rapids, Mich., has added to its line the park and bush pruner shown in Fig. 1, and has put a tackle block on the pole pruner, Fig. 2, which doubles the former leverage. A new style pole has also been substituted for the old one. The advantage claimed by the company for its line of pruners is



Fig. 1.—Rhodes Double Cut Park and Bush Pruner.

the double cutting edge, which cuts fror ... 3 of a limb and does not bruise the bark, but leaves a clean, smooth cut that heals rapidly. It is pointed out that the difficulty of double cutting shear blades drawing together and cutting themselves has been overcome by the overlapping points, the illustrations of the shears showing that the points of the shears pass each other before they

cut into the limb far enough to draw the blades together and cut themselves. The pruners are referred to as being finely finished and made from the best quality of material. The shear blades are forged from tool steel and are carefully ground and tempered. The ferrules are of wrought iron 4 in, long, with an extra ferrule 1 in, long on the end. A rivet passing through the ferrule, handle



Fig. 2 .- Rhodes Double Cut Pole Pruner,

and shank of the shears, prevents ferrule and shears coming loose from the handle. The park and bush pruner is made in one size, 3 ft. long; and the pole in the pruner shown in Fig. 2 is 10 ft. long.

The Steel Frame Freezer.

The Richmond Cedar Works, Richmond, Va., is putting on the market the freezer shown herewith, having a frame made of nonbreakable stamped steel, illustrated in Fig. 2. The frame is referred to as being built like a



Fig. 1 .- The Steel Frame Freezer.

bridge, and it is explained that while light it is very strong and cannot break from use or when being shipped. The frame fits flush with top of pail to give strength and compactness. The cans are narrow and long, to insure rapid freezing. There is a sanitary stud in the



Fig. 2 .- The Stamped Steel Frame.

bottom of can and a well fitted top. The pail is made of selected Virginia white cedar, bound with galvanized electric welded wire hoops, sunk in grooves to prevent their falling off. The freezers are made in 2, 3, 4, 6 and 8 quart sizes.

Indestructible Closet Seat, Cover and Tanks.

The H. W. Johns-Manville Company, 100 William street, New York, has brought out the J.-M. indestructible closet seat and cover and tanks, here illustrated. This line of Sanitor goods is manufactured of wood fiber, molded under heavy hydraulic pressure and indurated, each article in a single piece, so that there are no joints



Fig. 1 .- J-M Indestructible Sanitor Closet Seat and Cover.

to part or cracks to develop in which to harbor filth or disease germs. The goods are offered as proof against deterioration by heat or moisture and urine will not injuriously affect the various articles, being made as they are of a homogeneous material. They are finely finished to match any trim, including light and dark oak, mahogany, white enamel, &c. By means of a special process the grain of a wood is mechanically transferred, thereby insuring an excellent reproduction. The point is made that the company has been making other articles







Fig. 3 .- Sanitor Low Tank.

satisfactorily under similar processes for 20 years. The tanks are equipped with high grade standard fittings. Fig. 1 is a representation of the seat and cover complete with metal fittings. Figs. 2 and 3 illustrate the high and low tanks, both of which are also equipped with fixtures. The high tank, Fig. 2, is 20 x 11 x 10½ in. outer dimensions, with walls properly proportioned to give substantial service. The lower tank, Fig. 3, has extreme outside measurements of 21 x 8 x 19 in.

The Cleanly Egg Sheller.

The Cleanly Egg Sheller Company, Farmers' Bank Building, Pittsburgh, Pa., is putting on the market the egg sheller shown herewith. It consists of two porcelain cups about 3 in. high, with a rubber egg holder in the top of each, as illustrated in Fig. 1. One of the cups has



Fig. 1 .- The Cleanly Egg Sheller.

a metallic pivoted striker, actuated by a coil spring. The purpose of the sheller is to crack and prepare hot soft boiled eggs at the table, in a cleanly manner, and to avoid burned and soiled fingers, which often result from breaking eggs with a knife. In operating an egg is placed in one cup, as shown in Fig. 1; then pressing the two cups firmly together, as in Fig. 2, the striker is let go with a quick snap, which will cut the egg shell and permit the loose contents of the shell to be emptied into an egg cup or glass. The remainder of the shell contents



Fig. 2 .- Shelling an Egg

can be removed with a spoon. The empty shells may be loosened from the holders with a spoon. By using this device it is only necessary to touch the egg when placing it in the sheller, and even that may be avoided by putting it in with a spoon.

The Unique Ice Cream Disher.

A new model ice cream disher made by the Mosteller Mfg. Company, Chicago, Ill., and designed especially for the filling of pastry cones, is here illustrated. By means of a thumb lever the holder is made to revolve in its frame, and deposits the cream in the cone without danger of spilling. The frame of the disher is made in



two different styles, one of the best white bronze metals and the other of aluminum, while the bowls are highly polished German silver. It is described as being durably constructed throughout, and is made in sizes dispensing 6, 8, 10, 12, 16 and 20 fillings to the quart.

THE NEW HAVEN WIRE BOUND BOX COMPANY, New Haven, Conn., operating under patents owned by the National Wire Bound Box Company, is manufacturing wire bound packing cases, which can be shipped or stored flat. In construction thin boards are fastened by staples to cleats. The binding wires are stitched to the boards and cleats, the whole forming a box blank. The box blank is then folded, the ends are put in and the case is complete, the wires forming a hinge for the lid. The case is closed and fastened by twisting together the projecting ends of the wires, and thus lends itself to being sealed. The points of excellence possessed by the cases are strength, security and light weight, the latter item representing considerable saving in freight charges. The company states that this form of case, of which many sizes are made, has received very strong indorsements from various railroads.

The New Marlin Trap Gun.

The accompanying illustration shows a trap gun just put on the market by the Marlin Firearms Company, New Haven, Conn., and is the first special model made by the company for trap work. It is a 12-gauge take be made with butt stock of any desired length and drop at a slight additional charge.

THE H. A. MATTHEWS MFG. COMPANY, Seymour, Conn., is putting on the market a patented combination ball bearing, especially intended for the automobile trade,



down, 6-shot repeater, and is alluded to as efficient, easily handled, and accurate in shooting. It has a hand-made butt stock of imported Circassian walnut, finely modeled, London oil finish and fine checking; a simple, strong and quick repeating mechanism with highly polished operating parts and the special smokeless steel barrel. It is pointed out that the quality of material and workmanship make it handsome, harmonious and distinctive, yet admit of selling the gun at a moderate price. It will also The cone and cap are hardened by special process, and the bearing may be almost instantly assembled as the cup retains the balls, while the cone is inserted in place.

The Hardware business of L. W. Thompson, Woburn, Mass., has been incorporated as the Woburn Hardware Company, with the following officers: L. W. Thompson, president; E. F. Trull, secretary, and F. G. Richardson, treasurer. The business was founded in 1840.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils-| Fig. 21 | Fig. 22 | Fig. 23 | Fig. 24 | Fig. 25 | Fig 10 (445) 56 (658) Strained 34 (635) 63 (637) 14 (635) 15 (637) 16 (73) 17 (73) 18 (740) 19 (74) 19 (74) 10 (74) Domestic, Prime... wfoundland Elaine... nifled Mineral Oilsavity, 25@30 cold Black, 29 gravity, 25@30 cold test gravity, 15 cold test...... Summer Cylinder, light filtered. Dark filtered. Paraffine, 903-907 sp. gravity. 903 sp. gravity. 983 sp. gravity. Red Miscellaneous-Barvies: White Foreign. # ton \$18.50 Amer., floated. # ton 17.00 Off color. # ton 12.50 Chalk, in bulk. # ton 3.00

	# gal. China Clay, Imported # ton 11.50@1.80 Clobalt, Oxide
-	Putty, Commercial # 100 b
	In bladders\$1.70 @1.80 In bbls or tubs
	Spirits Turpentine- p gal.
	In Oil bbls43½@44 In machine bbls44 @44½
-	Glue— Şam
-	Cabinet 12 @15 Common Bone 7½@ 9 Extra White 18 @24 Fish, liquid, 50 gal. bbls., per 31-32 23
	Fish, liquid, 50 gal. bbls., per al- lon 60 (21.20) Foot Stock, White 12 (21.44) Foot Stock Brown 9 (21.44) German Common Hide 10 (21.24)
	German Hide
	Gum Shelfac- 39 75
	Bleached, Commercial. 17½@18½ Bone Dry. 22½@23½ Button 30 @40 Diamond I @39
	Fine Orange. 25 @30 A. C. Garnet. 20 @21 G. A. L. Garnet. 18 @20 Kala Button. 15½@16 D. C. @41
	Octagon B
)	Colors in Oil— p m Black, Lampblack
	Black, Lampblack
_	

	Blue, Ultramarine
	Lead, English white, in Oil. 10\%(@10\%) Lead, American White: Dry and in Oil, 100, 250 and 500 fb kegs. Dry and in Oil, 100, 250 and 500 fb kegs. Tory and in Oil, 25 and 50 fb kegs. Tory and in Oil, 25 b kegs. Tory and in Oil, 12\% fb kegs. Tory and in Oil, 12\% fb kegs. Tory and in Oil, 12\% fb tin pails. Tin 100 fb kegs. Tory Tin 125 and 50 fb kegs. Tin 105 of less than 500 fbs. Tin 105 of less than 500 fbs.
1	Zinc, Dry- Pr
	American, dry
	Dry Colors— a b
	Black Carbon

a p
Black Drop, English 5 @15
Black, Ivory
Lamp, commercial 4 @ 6
Blue, Celestial
Blue, Prussian
Blue, Ultramarine
Brown, Spanish
Carmine No. 40 93 10/03 95
Green, Chrome, ordinary
Green, Chrome, pure
Ocher, American 9 ton \$8.50@16.00
American Golden 21/2@ 31/4
French
Orange Mineral, English10 @12
French
American
Ded Sedies Bestel
Red, Indian, English 4½@ 6 American 3 @ 3¼
American 3 @ 5%
Red, Turkey, English
Red, Tuscan, English
Red. Venetian, Amer. # 100 fb \$0.50@1.25 English
Sienna. Italian, Burnt and
Powdered 3 @ 9 Italian, Raw, Powdered 3 @ 7
American Raw 114@ 2
American Burnt and Pow'd 1½@ 2 American Burnt and Pow'd 1½@ 2
Talc, French
American
Town Alba Franch 30 100 B 00@ 1 00
Terra Alba, French. \$\tilde{P}\$ 100 fb .90@ 1.00 English \$\tilde{P}\$ 100 fb .80@ 1.00
American 30 100 fb. No. 175@ .80
American \$\text{100 fb}, \text{ No. 175@ .80} \\ \text{American \$\text{\$\text{9}}\$ 100 fb, \text{ No. 260@ .65} \end{array}
Umber T'key But & Pow 2%@3
Umber, T'key, Bnt, & Pow. 2%@ 3 Turkey, Raw and Powdered. 2%@ 3 Burnt, American
Burnt, American 11/2@ 2
Raw, American 11/2@ 2
Yellow, Chrome, Pure12%@15
Vermilion, American Lead 7 @25 Quicksilver, bulk
Onicksilver, bulk
Onicksilver, bags
English, Imported
Chinese\$0,90@1,00

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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Current

General Goods .- In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the mar-ket as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or iobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33 is @ 33 is & 10 % signifies

that the price of the goods in question ranges from $33\,\%$ per cent, discount to $33\,\%$ and 10 per cent, discount,

Names of Manufacturers.-For the names and addresses of manufacturers see the advertising columns and also The Iron Age Directory, issued annually, which gives a classified list of the products of our advertisers and thus serves as a directory of the Iron, Hardware and Machinery trades.

Standard Lists .- "The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.-The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind-	Awl and Tool Sets—See
	Axes—
lorth's	Single Rit have weights. Per doz.
forth's	First Quality \$4.73(a 3.00)
Window Stop-	Second Quality 34.25 (14.5)
ves' Patent	Double Bit, base weights: First Quality\$7.00(a7.50
ers	Second Quality \$6.50(46.75
apin s Periection	Axle Grease-
Ammunition—See Caps, Car-	See Grease, Axle.
tridges, Shells, &c.	Axles- Iron or Steel.
Anti-Rattlers-	Concord, Loose Collar 444 4124
Rattlers. & doz. pairs, Nos. 1.	Concord, Solid Collar 4 265 ¢
ernald Mfg. Co. Burton Auti- Rattlers, \$\psi\$ doz. pairs, Nos. 1, \$0.75; 2, \$0.60; 4, \$1.00; 5, \$0.50, ernald Quick Shifter, \$\psi\$ doz. \$2.00\alpha\$3.00	No. 11/2 Com., New Style . 41/4/04/3/4¢
pairs\$2.00@\$3.00	No. 1 Common, Loose 3464 c No. 1½ Com., New Style . 4464% No. 2 Solid Collar 4464%
American-	
agle Anvils	Nos. 13 to 11
ay-Budden, Wrought	Nos. 15 to 1870d 10d 70d 10d 5%
Imported-	Nos. 19 to 22 70@10@70@10@5/6
wedish Solid Steel Paragon,	Boxes, Axles-
h	turned and Concord, not
10	Common and Concord, not turned
Doc 10½ c Weddish Solid Steel Sisco, Superior, Doc 10½ c D	(0., 0111)
Anvil, Vice and Drill-	Half Patentlb., 91/2/02/10¢
Anvil, Vice and Drill- lillers Falls Co., \$18.0015.010%	Bait- Fishing-
Apple Parers - See Parers,	Hendryx:
Apple, &c. Aprons, Blacksmiths'-	A Bait
vingston Nail Co10%	B Bait
Augers and Bits-	Balances- Sash-
om. Double Spur80%	Balances— Sash—, Caldwell new list
canings' Pata., Bright.65&10@70%	A Ultimate
lack Lip or Blued65@65&5% oring Mach. Augers70%	Light Spring Balances. 60@ 006-%
ord's Auger and Car Bits40&10% ord's Auger and Car Bits40&5% t. Washington Auger Co., Con-	Chatillon's:
ord's Auger and Car Bits40&3%	Chatillon's: Light Spg. Balances.
ard's35%	Circular Balances50&10%
E Jennings & Co.:	
t. Washington Auger Co., Con- ard's	Barb Wire—See Wire, Barb.
No. 30, R. Jennings' list	Bars- Crow-
ussell Jennings'25&10&21/2 %	Steel Crowbars, 10 to 10 lb.
avhew's Countersink Bits45%	per 1b., 24@844
ugh's Black	No. 10 Ideal, Nickel Plate. \$9 gro. \$8.50
nell's Auger Bits60%	Beam, Scale-
nell's Bell Hangers' Bits	Scale Beams
nell's King Auger Bits50%	Scale Beams 40 % Chattillon's No. 1 30 % Chatillon's No. 2 40 %
wan's Jennings' Pattern 50%	Pantone Connet
right's Jennings' Bits50%	Beaters, Carpet-
Bit Stock Drills-	Holt-Lyon Co.; No. 12 Wire Coppered @ doz. \$0 80;
Expansive Bits-	Tinned
ark's Pattern, No. 1, \$\mathre{\pi}\ doz., \$26;	No. 11 Wire Coppered, # doz. \$1.15; Tinned \$1.20 No. 10 Wire Tinned # doz. \$1.50
ord's. Clark's Pattern60&5@60&10%	Postore For
Bit Stock Drills— See Drills, Twist. See Drills, Twist. See Drills, Twist. Lark's Pattern, No. 1, \$\pm\$ doz., \$26; No. 2, \$18. No. 2, \$18. Pattern, .60&.560&.10% ord's, Clark's Pattern, .60&.560&.10% E. Jennings & Co., Steer's Pat25% vigne Pat., small size, \$18.00; large size, \$26.00	Dover Stamping & Mfg. Co.: Genuine Dover, per gro., No. 1, Tumbler Size, \$1.50; No. 2, Family Size, \$1.50; No. 3, Extra Family Size, \$24.00; No. 4, Hotel Size,
size, \$26.00	Genuine Dover, per gro., No. 1,
Cimiet Pite	ily Size, \$7.50; No. 3, Extra Fam-
Per ara	ily Size, \$24.00; No. 4, Hotel Size, \$30.00.
ommon Dbl. Cut\$3.00@3.25 erman Pattern, Nos. 1 to 10,	Holt-Lyon Co.: Holt, per doz., No. 5, Jap'd, \$0.80; No. 4, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65, Lyon, Jap'd, per doz., No. 2,
erman Pattern, Nos. 1 to 10,	No. A. Jap'd, \$1.15; No. B. Jap'd.
\$4.75; 11 to 18, \$5.75 Hollow Augers-	\$1.85 No. 6, Jap'd, \$1.65,
onney Pat., per doz \$5.50@6.00	
mes20&10%	Taplin Mfg. Co.:
Ship Augers and Rite_	\$1.35. Taplin Mfg. Co.: Improved Dover, per gro., No. 60 \$6.00; No. 75, \$6.50; No. 199, \$7.00; No. 102, Tin'd, \$8.50; No. 152, Hotel, Tin'd, \$17.00; No. 209, Tumbler, \$8.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00
	No. 102, Tin'd, \$8.50; No. 150,
rd's	Tin'd, \$17,00; No. 200, Tumbler,
L'Hommedieu's6%	\$8.50; No. 202, Tumbler Tin'd.
	doz., \$25,00. Mammoth, per
Awl Hafts-See Handles.	Bellows-
Mechanics' Tool.	Blacksmith, Standard List:
Awis-	Split Leather 606 10 655%
rad Auls: Handled are \$2.75@2.00	Grain Leather50@50&10% Hand-
Handledgro, \$2.75@3.00 Unhdled, Shlderedgro.63@66¢	Inch. 6 7 8 9 10 8
Unhandled, Patent gro.66@70¢	Doz. \$500 5.50 6.00 6.50 7.50
co Aurls:	Molders-
Unhandled, Patentgro. 31@34& Unhaled, Shideredgro. 65@70&	Inch. 10 12 14 16 15 Doz. 87.50 9.00 12.00 15.00
	Bells- Cow-
oratch larla.	
oratch larle:	Wrought Cow Bells
avaich larle:	Wrought Cow Bells
Yaich Auds. Handled. Comgro. \$3.50@1.00 Handled. Rocket.gro. \$11.50@12.00 more Tool Mfg. Co.; Finners' and Brad Awls	Wrought Cow Bells

Hand	Star, Machine, Double Wedge60% Steward & Romain Mfg. Co.: Style No. 13, Double
Miscellaneous-	Plow and Stove
Farm Bells	Stove
Belting	Common Iron 80% Norway Iron 80% American Screw Co.: Norway Phila, list Oct, 16, 81 924 Eagle Phila, list Oct, 16, 81 924 Eagle Phila, list Oct, 16, 81 924 Eagle Phila, list Oct, 16, 81 824 Eagle Phila, list Oct, 16, 84 80% Eagle Phila, list Oct, 16, 84 80% Eagle Phila, list Oct, 16, 81 824 Eclipse, list Dec, 28, '99, 80% Russell, Burdsall & Ward Bolt & Nut Co.: Empire, list Dec, 28, '99, 80% Norway Phila, list Oct, 84 80% Eagle Shelton Co.:
Light Daniel	Bay State, list Dec, 28, '9980% Franklin Moore Co.; Norway Phila list Oct, 16, '8480%
Competition (Low Grade)	Eclipse, list Dec. 28, '9980% Russell, Burdsall & Ward Bolt &
70&10@75% Standard	Empire, list Dec. 28, '99 80% Norway Phila., list Oct. '84 80%
Bench Stops— See Stops, Bench	Eagle
Benders and Upsetters, Tire— Green River Tire Benders and Up-	Sorway Philia, list Oct. 84 897, Eagle 8214 % Shelton Co.: Tiger Brand, list Dec. 28 '99 807 Philia. Eagle, list Oct. 16, 1884 8214 7 Upson Nut Co.: Tire Bolts
Bicycle Goods—	Borers, Bung— Borers Bung, Ring, with Handle:
John S. Leng's Son & Co.'s 1908 list: Chain, Parts. Spikes and Tubes 60°	Borers Bung, Ring, with Handle: Inch II
Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.	
Planks Taskle	C. E. Jennings & Co25% Langdon, New Langdon and Lang-
Common Wooden	C. E. Jennings & Co
Snatch, 50%. Lane's Patent Automatic Lock and Junior	Comman Ball, American . \$1.50 Barber's
Boards, Stove—	C. E. Jennings & Co
Embossed	Millers Falls Drill Braces25&10 P. S. & W. Co., Peck's Pat60&10%
See Washboards.	Wrought Steel 754 1045@809
Bobs, Plumb— Kenffel & Esser Co	Bradley Metal Clasp. 80&10@80&10&5 Griffin's Pressed Steel
Common Carriage (cut thread): % x 6 and smaller75&5% Larger and longer70&5%	Bright Wire Goods-
% x 6, smaller and shorter,	See Wire and Wire Goods.
Phila, Eagle, \$3.00 list 80@ — % Bolt Ends, with C. & T. Nuts, 70&10%	Buckets, Galvanized -
Machine (Cut Thread): % x 4 and smaller75&10% Larger and longer70&10%	M'fr's list, price per gross. Quart. 10 12 11 Water, Reg. 26.85 29.50 33.50 Water, Hvy. 45.35 48.00 52.00 Fire, Rd. Btm32.00 34.65 38.65 Well 37.35 41.35 45.35
Door and Shutter-	Water, Hvy 45.35 48.00 52.00 Fire, Rd. Btm.32.00 34.65 38.65 Well 37.35 41.35 45.35
Inch	Bull Rings—See Rings, Bull. Butts—Brass— Wrought, High List, Oct.:6.06.65% Cast Brass, Tiebout's
Per doz\$1.20 1.50 2.25 Cast Iron Chain, Flat, Japanned: Inch 6 8 10 Per doz\$1.00 1.40 1.65 Cast Iron Flat Shutter, Jap'd,	Cast Iron— Fast Joint, Broad40&10@50% Fast Joint, Narrow40&10@50%
Inch	Loose Joint
Per doz	Wrought Steel-
Barrel Bronzed	Light Narrow, Light Reversible
Ives' Wrought Metal 10"	Inside Blind, &c
Expansion— F. H. Evans' Crescent. 40/660% Richards Mfg. Co	Light Narrow, Loose Pin. 1065% Light Narrow, Ball Tip., 60%
Star, Lag Screw Type69&10&5&24.2 Star, Wood Screw Type40% Star, Machine, Single Wedge60%	Broad

^
Anna Bird
Cages, Bird— Hendryx Brass. Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 2007
1100, net list; 1200, 15%; 200, 300, 900
900
Calipers - See Compasses.
Calks, Toe and Heel-
Blunt, 1 prong, per 100 lb., \$3.50@\$3.85
Sharp, 1 prong, per 100 lb., \$4.00@\$4.35
Burke's, 1 pg. Blunt Toe, 3\%, 2 pg. Blunt Toe, 4\%, 2; 1 pg. Sharp Toe, 4\%, 2 pg. Sharp, 4\%, 2; Blunt Heel, 4\%, 2 pg. Sharp, 4\%, 2; Blunt Lautier, Blunt, 4\%, 4\%, 2; Sharp, 4\%, 4\%, 4\%, 4\%, 4\%, 4\%, 4\%, 4\%
4¼¢; 2 pg, Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel4¾¢
Lautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢ Perkins', Blunt, @ lb, 3.65¢; Sharp,
See Openers, Can.
Caps, Percussion-
Eley's E. B
F. L
G. E
Primers Rerdan Primers, \$2 per M 20ds
Berdan Primers, \$2 per M 2065, Primer Shells and Bullets 15&10%
All other primers per M . \$1.52@1.60 Carpet Stretchers—
See Stretchers, Curpet.
Cartridges—
32 C. F., \$5.50
22 cal. Rim. \$1.5010&5%
\$2 cal. Rim, \$2.75
Blank Cartridges: \$2 C. F. \$5.50 1045 \(\) \$8 C. F. \$5.50 1045 \(\) \$2 cal. Rim, \$1.50 1045 \(\) \$2 cal. Rim, \$2.75 1045 \(\) \$B. B. Caps, Con. Ball, Sugd, \$190 B. B. Caps, Round Ball \$1.49 Central Fire 25 \(\)
Central Fire
Primed Shells and Buttets. 15&10% Rim Fire, Sporting50% Rim Fire, Military15&5%
Casters— Bed
Philadelphia 7041 675%
Acme. Ball Bearing
Acme, Ball Bearing
Yale (Double Wheel) low list40&10%
See Leaders, Cattle.
American Coil, Straight Link: 3-16 1/4 5-16 1/8 1/2 1/8
Chain, Proof Coil— 3-rectant Coil, Straight Link: 3-rectant 4 5-rectant Link: 57.70 5.10 4.15 5.50 3.30 3.10 54.75-1 1½ to 1½ inch. 53.00 3.10
\$3.00 3.10 and letter deduct 956
In cask lots, deduct 25¢. German Coil70&5%
German Pattern Coil:
2 and 3
Halter-
Halter Chains60&5@60&10% German Pattern Halter Chains, list July 24, '9770&5% Covert Mfg. Co.:
list July 24, '9770&5%
Eliller
See Halters and Ties.
Trace, Wagon, &c
16-6-3, Straight, with ring . \$26.00
146—6-3, Straight, with ring \$26.00 146—6-2, Straight, with ring \$27.00 146—8-2, Straight, with ring \$30.00 146—10-2, Stryht, with ring \$35.00
NOTE - Add 20 mer pair for Hooks
NOTE.—Add 2c per pair for Hooks Fwist Traces: add per pair for Nos. 2 and 3, 2c: No. 1, 3c; No. 0, 4c to price of
traight Link. Eastern Standard Traces, Wag-
on Chain, &c
Miscellaneous-
Iron 60&10&5 @ 60&10&10%
Hack Chain, tist July 10, '95; Iron
Bridgeport Chain Co.:
Triumph Halter and Coil.35&2\2\@40% Triumph Dog50&10\alpha60%
Brown Halter and Coil45@50&5% Covert Mfg, Co.; Breast, Halter, Heel, Rein, Stal- lion
Breast, Halter, Heel, Rein, Stallion
Breast, Halter, Heel, Rein, Stalinion
Chains
Wire Goods Co.:
Universal Dbl,-Jointed Chain70%
Chain and Ribbon, Sash-
Oneida Community: Steel Chain60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered
Pullman: Bronze Chain, 60%; Steel Chain, Coppered 60&10%, Sash Chain Attachments, per set. 8¢ Aluminoy Sash Ribbon, per 100 ft 52,000 55,00
Pullman: Bronze Chain, 60%; Steel Chain, Coppered .60&10%; Sash Chain Attachments, per set. 8¢ Aluminoy Sash Ribbon, per 100 ft32.00@35.00 Sash Ribbon Attachments, per set. 8¢ Chalke
Pullman: Bronze Chain, 60%; Steel Chain, Coppered 60&10%; Sash Chain Attachments, per set. 8¢ Aluminoy Sash Ribbon, per 100 ft \$2.00@\$5.00 Sash Ribbon Attachments, per set. 8¢ Chalke.
"Minnan: Bronze Chain, 60%; Steel Chain, Coppered .60&10%; Sash Chain Attachments, per set. 8¢ Aluminoy Sash Ribbon, per 100 ft52.00% 55.0 Sash Ribbon Attachments, per set. 8¢ Chaik— "Crpanters" Blue
Allman: Bronze Chain, 60%; Steel Chain, Coppered

Chests, Tool-	Conductor Pipe,—
American Tool Chest Co.; Boys' Chests, with Tools	L. C. L. to Dealers: Gal. Steel. Charcoal, Copper.
Gentlemen's Chests, with Tools. 30% Farmers', Carpenters, etc., Chests,	Northeastern: 70&10% 50&10&71/2% 50&10%
Boys' Chests, with Tools 55% Youths' Chests, with Tools 40% Gentlemen's Chests, with Tools 30% Farmers' Carpenters, etc., Chests, with Tools 20% Machinists' and Pipe Pitters' Chests, Empty 45% Tool Cabinets 45% C. E. Jennings & Co.'s Machinists' Tool Chests 74% Chicale.	Eastern: 70&10&5% 50&10&71/2% 50&10% Central:
Tool Cabinets	Central: 75&5% 60% 50&10% Northwestern:
Chisels—	75&2½% 60% 50&10%
SocketFramingandFirmer Standard List 80&10@80&10&10%	Western: 70&71/2% 50&121/2% 50&5%
Buck Bros 30%	Tennessee: 70&10% 50&12½% 50&10% Southern:
C. E. Jennings & Co.: Socket Firmer No. 10	70% 50&12½% 50&5% Southwestern:
Socket Framing No. 15	70% 50&5% 50&5% Terms, 60 days: 2% cash 10 days. Fac-
	tory shipments generally delivered. See also Eave Troughs.
Buck Bros. 30% C. E. Jennings & Co. Nos. 191, 181. 25% L. & I. J. White Co. 25&5% Cold — 1b.	Coolers, Water— L. & G. Mig. Co.:
Cold Chisels, good quality 13@15¢ Cold Chisels, fair quality 11@12¢ Cold Chisels, ordinary 9@10¢ Elmore Tool Mfg. Co.: 50&5%	Galvanizad on \$1 85 \$2 00 \$2 25 \$2 90 \$3 90
Cold Chisels, ordinary 9@10¢	Galvanized, Lined, side handles, Gal 2 3 4 6 8
Chucks-	Galvanized, Lined, side handles, Gal. 2 3 4 6 8 Each\$1,95 \$2,15 \$2,40 \$3.30 \$1,15 White Enameled
Almond Drill Chucks 35% Almond Turret Six-Tool Chuck 40% Beach Pat, each \$8,00 35&5% Empire 25% Blackst Drill Chuck 25% Blackst Drill Chuck 25%	Coppers' Tools-
Beach Pat, each \$8.0035&5% Empire25%	See Tools, Coopers'. Coppers, Soldering—
Blacksmiths'	Soldering Coppers, 3 lb, to pair and heavier, 211/2¢; lighter
Independent 35%	than 3 lb. to pair281/2¢ Cord— Sash—
Universal Reversible Jaws35%	Braided, Drablb. 35¢
Combination, Reversible Jaws35% Combination, Com. Style Jaws40% Round Body or Box Body, 2 Chuck	to 12, 22¢; No. 7, 22½¢; No. 6,
	over, 1 cent less per pound.
Drill Chucks; New Model, 25%; Geared Pat-	Italian, Ib., A, No. 18, 25¢; B, 22¢
Gared Scroll Chucks	Cotton Sash Cord, Twited 18@20¢
Standard	Cable Laid Russialb21¢ India Hemp. Br'd'dlb21¢
Standard	Braided, Drab
Union Mfg. Co.: Combination Nos. 1, 2, 3, 4, 5, 6.	Pearl Braided, cotton, No. 6, 19 lb, 2012¢; No. 7, 1912¢; Nos. 8 to 12,
Union Mfg. Co.; Combination Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 2135% Scroll Combinations, Nos. 83 and 84	1992¢, in 12 doz, to 100 doz, 1018, Eddystone Braided, Nos, 8 to 12,
Geared Scroll, Nos. 33, 34 and 35. 25% Ludependent Iron, Nos. 18 and 318 35%	India Hemp, Ticisted 10. 13@14c Patent India, Ticisted 1b 17c Pearl Braided, cotton, No. 6, 18 lb. 20½¢; No. 7, 19½¢; Nos. 8 to 12, 19½¢; in 12 doz, to 100 doz, lots, Eddystone Braided, Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢. Harmony Cable Laid Italian, Nos. 7 to 10 10 lb. 23¢ Pullman:
Seroll Combinations, Nos. 83 and 84 and 59. 25 d Independent Iron, Nos. 18 and 318. 25 d Independent Iron, Nos. 18 and 318. 35 d Independent Steel, No. 64	Wire Sash Cord10%
102, 103, 104	Samson, Nos. 8 to 12: Braided, # lb., Drab Cotton,
Universal No. 42	55¢; Italian Hemp, 40¢@ 50¢; Linen, 65¢; White Cot-
48 and 50	Massachusetts, White 10 to 45¢
72 Westcott Patent Chucks: Lathe Chucks. 50%	Sash Cord Attachments, per 100.\$2.00 Samson, Nos. 8 to 12: Braided, \$\pi\$ lb., Drab Cotton, 55\epsilon*: Italian Hemp, 40\epsilon*: 60\epsilon*: 50\epsilon*: 50\
Westcott Patent Chucks: Lathe Chucks	A. Drab. 45¢; A. White, 40¢; B. Drab. 40¢; B. White, 35¢;
Little Giant Drill, Improved50% Oncida Drill50%	See also Chain and Ribbon. Wire, Picture-
Whitaker Mfg. Co.: National Drill25%	Full Length90@—% Short Length90c20@—%
Clamps—	Full Length. 90@—% Short Length. 90&20@—% Hendryx Standard Wire Picture Cord. old list, 85&10% Turner & Stanton Co, Wire Picture Cord 90%
Carriage Makers', Star, P., 8. & W. Co. 50% Besly, Parallel. 33%&10% Hammer & Co.: 33%	Cord
Adjustable 20&5%	Grain50%
Myers' Hay Rack	Crayons—
Adjustable 20&5% Carriage Makers H. P. Screw 40&5% Myers' Hay Rack 50% Lineman's Swedish Neverturn 65% Saw Clamps, see Vises, Saw Filers' Cleaners, Drain, Wan's Champion Adjustable 50%	White Round Crayons, Cases, 100 gro., \$8.00, \$8.50, \$9.00 and \$10.00 according to grade. Zelnicker's Lumber:
Iwan's Champion, Adjustable	Zelnicker's Lumber: \$\pi\$ gro. White and Purple, Indelible\$7,50
American Fork & Hoe Co.: Star 20 Joz. Socket \$4.00	Blue, Red, Green, Yellow and Terra Cotta, \$6.50; Black\$4.50 Gignt Lumber, 514 in y 15.16 in
American Fork & Hoc Co.; Star. \$\forall Joz., Socket, \$4.00; Shank, \$\forall doz., X T\forall , \$3.50; Shank, \$\times \$0.2, X T\forall , \$3.50; Shank, \$\times \$3.75\$ Cleavers, Butchers' \$3.75	round, all colors, \$12.00; Indelibles, \$14.00; Blacks\$10.00
Cleavers, Butchers'-	Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, \$2.50; 5 in. x ¼ in Source \$1.75; 5 x ¼ x 3.16
Foster Bros	Zehnicker's Lumber; White and Purple, Indelible\$7.50 Blue. Red, Green, Yellow and Terra Cutta, \$6.50; Black\$4.50 Giant Lumber, 5¼ in. x 15-16 in, round, all colors, \$12,00; Indelibles, \$14,00; Blacks\$10.00 Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, \$2.50; 5 in. x ¼ in. Square, \$1.75; 5 x ½ x 3-16, \$2.50; 5 x 1¼ x 3-16\$3.00 Suremark, Black, \$2.25; Blue, Red and Yellow\$2.50
Clippers, Horse and	
Sheep— Chicago Flexible Shaft Co.:	American Fork & Hoe Co.: Montana
Chicago Flexible Shaft Co.: 1992 Chicago Horse, each\$19.75 20th Century Horse, each\$3.90 Lightning Belt Horse, each\$20.00 Stewart's Euclosed Gear Roll Bearing Horse, each\$3.6.75 Stewart's New Model Sheep Shearing Machine, each.\$12.75 Stewart Enclosed Gear Shear- ing Machine, No. 8, each\$9.75	Crow Bars—See Bars, Crow.
Stewart's Euclosed Gear Roll	American Fork & Hoe Co.:
Stewart's New Model Sheep Shearing Machine each \$12.75	Victor Garden
Stewart Enclosed Gear Shear- ing Machine, No. 8, each. \$9.75	No. 12 M'd'm Knives, 1847. 9 doz. \$3.50 Star. Eagle. Rogers & Hamilton
Clips, Axle— Regular Styles, list July 1. '05,	Cutlery, Table— International Silver Company: No. 12 M'd'm Knives, 1847. \$\pi\$ doz. \$3.50 Star, Eagle, Rogers & Hamilton and Anchor
Cloth and Netting, wire	Cutters— Glass— H. H. Mayhew Co
-See Wire, dc. Cocks, Brass-	H. H. Mayhew Co
	Meat and Food-
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, de	Nos401 402 403 404 403 406 406 1
Compression Bibbs70%	Enterprise: Nos 5 10 12 22 32
See Mills, Coffee,	Enterprise: Nos 8 10 12 22 32 Nos 8 10 12 22 32 Each .52 \$3 \$2.75 \$4.50 \$6 25@25&714% No. 202, \$1.50 40&716% P. S. & W. Co.: 1deal .00@16.5% Hales 50&5.5%
Collars, Dog— Nickel Chain, Walter B. Stevens & 80n's list. 40% Leather, Walter B. Stevens & Son's list. 46%	Ideal
Leather, Walter B. Stevens & Son's list	Martin M
Compasses, Dividers, &c.	New Triumph No. 605, \$2 doz. \$24.00.

er. 1% 0% 0% 0% 0% Diggers, Post Hole, &c-8 3,90 Perfection Post Hole Diggers, \$\frac{1}{2}\dots, \$\ Drawing Knives— See Knives, Drawing. 1/2¢ 35¢ Dressers Emery Wheel-Sterling Emery Wheel Dressers.....35% Sterling Wheel Dresser Cutters.....35% Drills and Drill Stocks

Blacksmith's Common Drilling
Machines \$1.50@1.75
Breast, Millers Falls 15&10.0
Breast, P. S. & W 33.5
C. & C. Ratchet 5 Estocks 25
Reversible Batchet Die Stocks 25
Reversible Batchet Die Stocks 25
Robert Stocks 25
Ratchet Falls Automatic Drills 33/&10
Ratchet, Curtis & Curtis 25
Ratchet, Curtis & Curtis 25
Ratchet, Weston's Style H Improved 10@10&5
Ratchet, Weston's Style H Improved 10@10&5
Ratchet, No 012 40&40&5
Ratchet, No 012 40&40&5
Ratchet, Witney's P. S. & W.
Whitney's Adjustable, No, 10, \$12.00,
Twist Drills— Drills and Drill Stocks-7 23¢ 2,00 15% 7¢ 0% 0% 100 ro. .50 d .00 Swan's: Nos. 7565 to 7568, 60%; No. 7540, 40&16% Eave Trough, Galvanized— | Territory. | Gal. Steel. | Copper. Northeastern. | 75&10&5% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50&10% | 50 Terms. 24 for cash. Factory shipmeets generally delivered. Note. Lower prices are made in some sections. See also Conductor Pipe and Elbows. Elbows, Stove Pipe
Edwards, Standard Blue...40&10&10%
Edwards, Royal Blue...40&10&10%
Reeves, Dover, Flat Crimp..40&10&5% Keeves. Dover. Flat Crimp. 40&10&5%

Emery, Turkish—
\$\fo\$ \fo\$ \fo\$ to \fo\$ t

10-lb. cans, 10 in case61/2¢ 7 ¢ 6 ¢	Gimlets— Single Cut- Numbered assort-	W. A. Zelnicker Supply Co.; Hammer, 30 doz., 12 in., \$2.00; 14 in., \$2.00 16 in., \$2.30 18	Reading's Gravity
10-lb. cans, less than 1010 ¢ 10 ¢ 8 ¢ Less quantity10 ¢ 10 ¢ 8 ¢	ments, per gro. Nail, Metal, No. 1, \$2.00; 2, \$2.30 Spike, Metal, No. 1, \$1,00; 2, \$1,50 Nail, Wood Handled, No. 1,	Hammer, \$\psi\$ doz., \$\frac{12}{2}\$ in., \$\sqrt{2}\$.00; \$\frac{14}{2}\$ in., \$\sqrt{2}\$.00; \$\frac{16}{2}\$ in., \$\sqrt{2}\$.30; \$\frac{18}{2}\$ in., \$\sqrt{2}\$.30; \$\frac{18}{2}\$ in., \$\sqrt{2}\$.30; \$\frac{24}{2}\$ in., \$\sqrt{3}\$.30; \$\frac{25}{2}\$ in., \$\sqrt{3}\$.30; \$\frac{18}{2}\$ in., \$\sqrt{3}\$.50; \$\frac{18}{2}\$ in., \$\sqrt{2}\$.50; \$\frac{18}{2}\$ in., \$\sqrt{2}\$ in., \$\sqrt{2}\$.50; \$\sqrt{2}\$ in., \$\sqrt{2}\$ i	No. 1617%, \$\vert\$ doz. sets, without screws, \$0.95; with acrews, \$1.25, Wrightsville Hardware Co.: O. S., Lull & Porter
NOTE.—In lots 1 to 3 tons a discount of 10% is given.	Nail, Wood Handled, No. 1, \$2.30; 2, \$2.60 Spike, Wood Handled, No. 1,	30 in., \$3.80. Sledge, W doz., oval, 30 in., \$3.80; octagon, 30 in., \$3.80; oval, 36 in., \$1.00; octagon, 36 in., \$1.00;	
Extensions, Bit— Ford's Auger Bit Extensions40&5%	\$1.30; 2, \$1.60 Glass, American Window	Awa 20 day 98 to 34 in \$5.60 . 4	Shepard's Noiseless, Nos. 60, 65, 55 55 75&5% Niagara, Gravity Locking, Nos. 1, 3 & 5
Ext. actors, emon Juice— —See Squeezers, Lemon.	See Trade Report.	36 in., \$5.80, 36 in., \$5.80; 36 in., \$7.80, 36 in., \$7.80, 8. R. R. 36 in., \$8.00; coal, 34 in., \$5.80,	7 3 6 5
Fastaners, Blind-	Glasses, Level— Chapin-Stephens Co65@65&10% Glue, Liquid Fish—	\$8.00; coal, 34 in., \$5.80. Hatchet, \$1 doz., 12 to 14 in., \$2.00.	Clark's No. 3
Zimmerman's Jap'd and Galv., 50 & 5%; Bronze and Plated50% Walking's	Bottles or Cans, with Brush, 25&10@50%	Hangers— NOTEBarn Door Hangers are gen-	Champion Gravity Locking75&3% Picneer
Upson's Patent40% Cord and Weight-	Grease, Axle—	erally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.	Empire
Ives. # gro., \$1.08	Common Gradegro.\$6.00@\$6.50 Dixon's Everlasting, 10-lb, pails, ea. 85¢; in boxes, \$\frac{1}{2}\$ doz., 1 lb, \$1.20;	Chicago Spring Butt Co.: Friction25%	Cate Hinges- Clark's or Shepard's-Doz. sets:
Acme Corrugated Fasteners70%	2 lb. \$2.00 Helmet Hard Oil	Oscillating	No
Faucets— Cork Lined50&10@60%	Griddles, Soapstone— Pike Mfg. Co331/4@331/4&10%	Baggage Car Door50% Elevator30% Railroad50%	Hinges only
Metallic Key, Leather Lined, 60&10@70% Red Cedar	Grinders— Pike Mfg. Co.:	Cronk & Carrier Mig. Co.;	New England: With Latchdoz@\$2.00 Without Latchdoz@\$1.60
Red Cedar 40.65@406.1065% Petroleum 706.10@75% B. & L. B. Co.:	Hand and Foot Power, Pyko Nos, 1, 2, 3; Pyko Primo; Pyko Peer- less; Pyko Spiral (foot power) 334%	Roller Bearing	Reversible Self-Closing; With Latchdoz@\$1.75 Without Latchdoz@\$1.35
Metal Key	Mower Knife and Tool, \$5.00.40&10% Royal Mfg. Co.: Alundum Grinding Machines, each, Nos. 01, \$1.75; 1A, \$2.50; 10,	Poller Pearing Fr Hv No	Western: With Latchdoz. \$1.75
John Sommer's Peerless Tin Key		22. \$18.00 60&10% Bull Dog, \$24.00 70% Lane Bros, Co.; Parlor, Ball Bearing, \$4.00; Standard, \$3.15; No, 105, \$2.85; New Model, \$2.80; New Champion per set of 41 Haugers, com-	Without Latchdoz\$1.15
John Sommer's Diamond Lock	Alundum Sickle Grinders, each, Nos. 20. \$5.00; 20A, \$6.00; 20A Combined, \$6.50	Standard, \$3.15; No. 105, \$2.85; New Model \$2.80; New Cham-	Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3
John Sommer's Reliable Cork Lined.	Grindstones-	plete with track	Miscellaneous— Griffin Mfg. Co., Fleur de Lis Surface Hinges. ≱ doz. prs
John Sommer's Chicago Cork Lined.00% John Sommer's O. K. Cork Lined50% John Sommer's Os Brand, Cedar50% John Sommer's Perfection, Cedar40%	Pike Mfg. Co.: Improved Family Grindstones. \$\pi\$ inch. \$\pi\$ doz., \$2,00	Hinged	Pivot Hinges— Bommer Bros, Pivot, Ball Bear-
Enterprise Self Measuring and	Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted40%	Lawrence Bros.:	Lawson Mfg. Co. Matchless30%
Pump, @ doz., \$36.00	Grips, Nipple — Perfect Nipple Grips40&10&2%	Clereland	Spring Hinges— Holdback, Cast Iron\$6.75@\$7.00 Non-Holdback, C'st Iron\$6.50@\$6.78
Felloe Plates See Plates, Felloe.	Halters and Ties-	Tandem, No. 50	Bardsley's Non-Checking Mortise Floor Hinges40%
Files - Domestic -	Bridgeport Chain Co.: Triumph Coil and Halters, 35&21/2@40%	Roller Bearing, Nos, 1 and 2.10% 10	Randslev's Patent Checking 3314 2 1
List Nov. 1, 1899. Best Brands70&10@75&10% Standard Brands75&10@80%	Brown Coil and Halters45@50&5% Brown Cow Ties50&5@50&10&5% Brown Tie Outs70&10@75&5%	Anti-Friction	Bommer Bros.: 40% Spring Butt Hinges
Gold Medal	Web	Hangers, Nos. 47, 48, 147, 247, 60&5% Pioneer Wood Track, No. 3. \$2.25	ing 1001, Ball Bearing 40% Mortise Floor, Ball Bearing 40% Lavatory Hinges 10% Non-Holdback Screen Door
Imported -	Sisal Rope. 20% Cotton Rope. 45% Hemp Rope. 45% Oneida Community: 45%	Roller B'r'g St'l Track No. 12.\$2.20 Roller B'r'g St'l Track No. 13.\$2.50 Roller B'r'g, Nos. 39, 41, 43.	Nos, 2000 and 900
Stubs' Tapers, Stubs' list, July 24, '97		Hero, Adj. Track No. 19. 50&10%	Chicago Spring Butt Co.;
Fixtures, Fire Door-	Am, Cow Ties	Adjustable Track Tandem Trol- ley Track No. 1650&10% Seal, Steel Track No. 8\$2.25 Auto Adj. Track No. 2259&5% Trolley B. D. No. 17, \$1.25; F. D. No. 129, \$2.25; No. 121, \$2.45; No. 150\$2.50 Safety Underwriters F. D. No.	Garden City Engine House25%
Universal, No. 103; Special, No. 104 \$3.75 Fusible Links, No. 96 50% Expansion Bolts, No. 107 60&10%	Hammers— Handled Hammers— Heller's Machinists'55&10@55&10&5%	Trolley B. D. No. 17, \$1.25; F. D. No. 120, \$2,25; No. 121,	Keene's Saloon Door
Expansion Bolts, No. 10760&10% Grindstone-	Heller's Farriers	\$2.49; No. 180	Columbia, W gr., No. 14, \$9.00:
Net Prices: Inch15 17 19 21	Farriers 40&10@50% Riveting 40&10@50% Machinists 66%@5% Blacksmiths 50%	Palace, Adjustable Track No. 132	No. 18
Per doz		122	Clover Leaf and Acorn, per gro, \$12.00 Oxford, new list 30% Floor Spring Hinges 65&10%
Reading Hardware Co60%	Fayatte R, Plumb: 40&2½@40&12½% A. E. Nail	Ives Wood Track No. 1	
Fodder Squeezers - See Compressors.	Rivet and Tinners' .10&71/2@40&121/2&5% Victor Magnetic Tack, W gro\$7.75	Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&714%	Matchless Jamb Hinges30%
American Fork & Hoe Co.: Towa Dig-Ezy Potato	Sledges-	sizes 2½ and 3	Superior Double Acting Floor Hinges
Hay Regular, 3-tine 45&20&12% / Hay Regular, 4-tine 60&71/2&5%	Under 3 lb., per lb., 50¢80&10% 3 to 5 lb., per lb., 40¢80&10&10% Over 5 lb., per lb., 30¢	Taylor & Boggis F'y Co.'s Kidder's Roller Bearing, \$\pi\$ doz., 4 in., \$12.00; 5 in., \$14.00.40&10\cdot\) Myers' Stayon Hangers60%	Buckeye All Steel Holdback Screen Door
Champion, Hay	Over 5 lb., per lb., 30¢.80&10&10% Handles—	4 in. \$12.00; 5 in., \$14.00.40&10%] Myers' Stayon Hangers	Ball Bearing Door25%
Columbia Manure	Agricultural Tool Handles Axe, Pick, de00410@0041045%	Hangers - Garment - Pullman Trouser, # gro., No. 1	No. 777, Sheet Steel Holdb'k, \$9 gr. pr
Round Shoulder Header, 4-tine. 65% Champion. Header	Fork, Shorel, Spade, &c.: Long Handles	Hangers— Garment— Pullman Trouser, # gro. No. 1 \$9.00; No. 4, \$24.00; No. 5, \$16.50; No. 10, \$21.00; No. 12, \$3.00; No. 13, Rods. \$9.00; No. 18, Loops	hampion Double Acting Door Hinge
Dakota, Header	D Handles	\$9.00; No. 18, Loops\$10.01 Victor Folding	Hinge
Wood, Barley. 35&5% Steel, Barley. 66%% Columbia, Spading. 70&7%&5%	Atkins'	Myers' Patent Gate Hangers, 19 doz.	Wrought Iron Hinges— Strap and T Hinges, &c., list
Frames - Wood Saw- White, 8'g't Bar, per doz. 75@80¢	Mechanics' Tool Handles- Auger, assortedgro.\$3.00@\$3.50	Lane Bros. Co	Light Strap Hinges 50&10%
Red, 8'g't Bar, per doz.\$1.00@1.25 Red, Dbl. Brace, per doz.\$1.40@1.30 Freezers, Ice Cream—	Brad Awlgro.\$1.65@\$1.75 Chisel Handles, Ass'd, per gro.: Tanged Firmer, Apple, \$2.40@	Hasps— Griffin's Security Hasp	Heavy Strap Hinges. 60&5% Light T Hinges 50% Heavy T Hinges 40% Extra Hvy. T Hinges 50&109
Qt1 2 3 4 6 Each\$1.25 \$1.60 \$1.90 \$2.20 \$2.80	\$2.65; Hickory \$2.15@2.40 Socket Firming Apple \$1.75@	Hatchets— Regular list, first qual.40.6121/2@—	
Fruit and Jelly Presses— See Presses, Fruit and Jelly.	\$1.95; Hickory1.60@1.75 Socket Framing, Hickory, \$1.60@\$1.75	Second quality50&10&5@—	Cor. Heavy Strap 60&5% 5 Cor. Ex. Heavy T 50&10% 5
Fry Pans-See Pans, Fry.	File, assortedgro.\$1.30@\$1.40 Hammer, Hatchet, &c.,	Clark, No. 5, \$1.25; No. 5B, \$1.50; No. 3, \$1.75; No. 3D, \$2.00; No. 7D, \$2.25; No. 3E, \$2.50; No. 1, \$3.0025%	Screw Hook and Strap. { 6 to 12 in 1b . 3 1/4 c } 22 to 36 in 1b . 3 c
Fuse — Per 1000 Feet. Hemp	Hand Saw, Varnished, doz., 80&	Hinges—	Screw Hook and Eye:
Waterproof Bal. Taped. 3.65 Waterproof Dbl. Taped. 4.40	85¢; Not Varnished65@75¢ Plane Handles: Jack, doz., 30¢; Fore, doz45¢	Blind and Shutter Hinges Surface Gravity Locking Blind: Dot. Sets with Fastenings, No.	%-inch
Waterproof Tpl. Taped. 5.15]	Chapin-Stephens Co.: 30@30&10% Carving Tool	1. \$0.70; No. 3, \$1.25; No. 5, \$2.65.	Hitchers, Stall— Covert Mfg. Co., Stall Hitchers30&2% Hods— Coal—
Gates, Molasses and Oil- Stebbins' Pattern80@8045%	Saw and Plane 30@30&10%	Mortise Shutter	M'f'gr's list, price per gross:
Gauges- Marking, Mortise, &c 50@50.610%	Screw Driver	North's Automatic Blind Fixtures. No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50. Charles Parker Co	Galv. Open 335 839 842 846 3 Jap. Open 26 28 31 35
Chapin-Stephens Co.: Marking, Mortise, &c50&50&10% Disston's Marking, Mortise, &c. 671/2%	T T Oemood: \$0.85@\$1.50	Hale & Renjamin Automatic Blind	Jap. Funnel 53 36 59 43
Wire, Brown & Sharpe's	Indestructible File and Tool. 19 gro., No. 1, \$8.00; No. 2, \$8.50; No. 3, \$9.00; No. 4, \$9.50; No. 5, \$10.00	Hinges	Masons' Etc. Cleveland Wire Spring Co.: Steel Brick. No. 162each \$1.65 Steel Mortar, No. 158each \$1.35
	5, \$10,00gro. lots 10%	brick, \$9.0020%	Steel Mortar, No. 158each \$1,35

January 21, 1909	THE IR	ON AGE	287
Hoes- Eye-	Jointers-	Sash, &c	Hot Pressed: Off list. Square
Scovil and Oval Pattern, 60&10@60&10&10%	Pike Mfg. Co., Saw Jointers, \$7.0040%	Automatic Gravity Metal Sash.	Hexagon
Grub, list Feb. 23, 1899, 70&10@70&10&10% D. & H. Scovil	Kettles— Brass, Spun, Plain20@25%	gro., \$149.58	Oakum-
Am. Fork & Hoe Co. (Scovil Pat- tern)	Enameled and Cast Iron—See Ware, Hollow.	Taylor Mfg, Co., Perfect Ventilating,	Best
Handled— Cronk's Weeding, No. 1,\$2.00; No. 2,\$2,50	Knives— Butcher, Kitchen, &c	₩ doz\$0,75@\$1.00	Navy
Star Double Bit	Foster Bros.' Butcher, &c30% Wilkinson Shear & Cutlery Co60%	Machines_Boring- Com. Upr't, without Augers,	Oil— Pike Mfg. Co., Stonoil40%
Crescent, Cultivator	Corn- Columbian Cutlery Co., Wilcut Brand Knives and Hooks60%	Com. Angl'r, without Augers,	Oil Tanks-See Tanks, Oil.
Sprouting		\$2.25(42.50) Ford Auger Bit Co\$22.00 Jennings', Nos. 1 and 425&7½%	Oilers— Steel, Copper Plated75&10%
	American Fork & Moc Co.: Easy Cut, ₱ doz., No, 10 C H., \$2.10 Easy Cut, ₱ doz., No, 10 B C H. \$2.20 Acme, ₱ doz. \$2.55 Dent, ₱ doz. \$2.55 Adjustable Sorrested ₱ doz \$1.90	Millers' Falls	Chase or Paragon: Brass and Copper50&10%
Vanhoe	Dent & doz\$2,35 Adjustable, Serrated, & doz\$1,90 Serrated & doz\$1,85	Corking—	Zinc
Scuffle, Lightning60&5% Hoisting Apparatus—	Adjustable, Serrated, ₱ doz. \$1.90 Serrated ₱ doz. \$1.85 Yankee, No. 1 C H \$1.35 Yankee, No. 2 C H. \$1.15	Reisinger Invincible Hand Power doz. \$48.00 Fence—	Malleable, Hammers' Improved, Nos. 11, 12 and 13, 10%; Old Pattern, Nos. 1, 2, 3, 4, 50%.
See Machines, Hoisting. Holders— Bit—	Standard List 804106-9	Williams' Fence Machineseach, \$5.50 Hoisting-	Spring Bottom Cans70@70&10%
Angular. \$\text{\psi} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	C. E. Jennings & Co., Nos. 45, 46, 25&712% Jennings & Griffin, Nos. 41, 42,	Moore's Anti-Friction Chain Hoist, 30% Moore's Hand Hoist, with Lock	Railroad Oilers, &c60@60&10% Maple City Mfg. Co.: Spring Bottom Cans70@70&10%
Bardsley's, Iron, 40%; Brass and Brouze	Swan's	Brake	Railroad Oilers, &c60@60&10% Openers—Packing Box—
Empire	Watrous	Chandler's121/2%	Herculever, \$\psi\$ doz., \$2430% Can Openers—
Richards Mfg. Co.; No. 117, Ever- ready, 40%; Nos. 118, 119, Sure Grip	Serrated Edge, per doz. \$5.00@5.50	Washing Boss Washing Machine Co.: Per doz.	Per doz. Sprague, Iron Handle30@35¢
Superior	Iwan's Sickle Edge	Boss No. 1	Sprague, Wood Handle40¢ Sardine Scissors\$1.75@3.00
Handles	Farriers'	Champion Rotary Banner No. 1.\$57.00 Standard Champion No. 1\$50.00 Standard Perfection\$27.00 Cincinnati Square Western\$33.00	Can and Bottle Openers, \$\partial \text{doz}_*, net; Yankee, \$0.75@\$0.85; Little
Triumph Fruit Jar Holder, \$\psi\$ gross, \$18.00; \$\psi\$ doz\$2.00	Knobs— Base, 21/2-inch, Birch or Maple,	Uneeda American, Round\$33.60	Gem. \$9,50@\$0.65; Nifty\$9.75 Egg-
Trace and Rein- Fernald Double Trace Holder. № doz. pairs	Rubber Tipgro.\$1.25@1.40 Carriage, Jap., Drive, all sizes, gro.35@40¢	Hickory	Hartigan Nickel Plate, 10 doz., \$2.00; Silver Plate, \$4.00.
Dash Rein Holder, @ doz\$1,25	Door, Mineraldoz.65@70¢ Door, Por. Jap'ddoz.70@75¢	Tinners' Hickory and Applewooddoz.45&5@50%	Packing-
Pike Mfg. Co., Belgian and Swaty, 50%; German3314%	Door, Por. Nickel. doz. \$2.05@2.15 Bardsley's Wood Door, Shutters, &c.15%	Mangers, Stable— Swett Iron Works	Asbestos Packing, Wick and Rope, any quantity18@20¢
Hooks—Cast Iron—	Lacing, Leather—	Mats, Door— Acme Flexible Steel	Rubber— (Fair quality goods.)
Clothes Line, Reading List	See Belting, Leather Ladders, Store, &c	Acme Flexible Steel	Sheet, C. O. S
Harness, Reading List40%	Lane's Store	See Picks and Mattocks.	Sheet, C. B. S
Belt, Nos. 1 to 1575&10@80%	Richards Mfg. Co.: Improved Noiseless No. 11250% Climax Shelf. No. 11350%	Milk Cans—See Cans, Milk. Mills, Coffee, &c.—	Sheet, Red
Bradley Metal Clasp Wire, Coat and Hat. 75&10@80%; Ceiling75&10@80% Columbian Hdw. Co., Gem75&10% Parker Wire Goods Co., King75&10%	Climax Shelf, No. 113	Enterprise Mfg. Co.: Coffee	American Packinglb. 7@10 ¢ Cotton Packinglb.16@25 ¢
Parker Wire Goods Co., King75&10% Wire Goods Co.:	L. & G. Mfg. Co., Melting and Plumbers'	Shell and Corn	Italian Packinglb. 9@10¢
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; V Brace, 75%; Czar Harness, 50%;	Reading	Parker's Box and Side50&10% Swift, Lane Bros. Co30%	Russia Packing1b. 9(11)¢ Pails, Water, Well, &c.—
Wrought Iron-	Hammer's M. I. Hand45%	Motors, Water— Divine's Red Devil	See Buckets.
Box, 6 in., per doz., \$0.90; 8 in., \$1.15.	Regular, No. 0doz.\$4.35@4.50	No. 1. Z 3 4 Lippincott's:	Dixon's Silica-Graphite, in 1 gal. pails and 5 gal, kegs, 25%; pack-
Cotton	Side Lift, No. 0doz.\$4.60@4.75 Hinge Globe, No. 0.doz.\$4.60@4.75 Other Styles40@40&10%	No 1 2 3 4 \$2.50 3,50 10,00 15,003314% Pike Mfg. Co., Tool and Knife	ages of larger size20% Pans— Dripping—
Miscellaneous - Hooks, Bench, see Stops, Bench.	Bull's Eye Police—	Mowers, Lawn—	Standard List
Bush, Light, doz., \$6.20; Medium, \$6.75; Heavy, \$7.65	Latches- Thumb-	NOTENet prices are generally quoted Cheapest, 10-in., \$2.00; advance	Edwards, Royal Blue
Grass, best, all sizes, per doz., \$2.75@\$3.00 Grass, common grades, all sizes,	Roggin's Latches, Jap'd, with Screwsdoz.35@40¢	10¢ for each size. Cheap, 10-in., \$2.25; advance 15@ 20¢ for each size.	Common Lipped: Nos 1 2 3 4 5 Per doz\$0.75 0.85 0.95 1.15 1.30
per doz	Cronk & Carrier Mfg. Co., No. 101,	Better Grade, 10-in., \$3.00; advance 25¢ for each size.	Refrigerator, Galva
Brass	Richards' Bull Dog, Heavy, No. 125	12 14 16 18 in. High Grade \$1.50 4.75 5.00 5.25	Inch
Malleable Iron70@70&10% Covert Mfg. Co. Gate and Scuttle Hooks40%	Leaders, Cattle-	Great American Ball B'r'g, new list 70%	Paper—Building Paper Asbestos: lb.
	Smalldoz.50¢; large, 60¢ Covert Mfg. Co.: Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.	Quaker City	Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft 21/2¢
Shoulder	35%; Sisal, 20%. Leathers, Pump—	Pennsylvania, Jr., Ball Bearing. 50&10&5%. Pennsylvania Golf	Roll Board or Building Felt, 3-32 and 1/2 in., 45 to 60 lb.,
See Nails, Horse.	See Pumps Lifters, Transom-	Pennsylvania Pony	per 100 sq. ft
See Shoes, Horses.	R. & E	Nails-	Rosin Sized Sheathing: 500 sq. ft.
Hose, Rubber— Garden Hose, %-inch:	Wire Clothes, Nos. 18 19 20 100 feet	Wire Nails and Brads, Miscellaneous85&5@85&10% Cut and Wire. See Trade Report.	Light weight, 25 lbs. to roll, 48@58¢ Medium weight, 30 lbs. to roll,
Competition	75 feet \$1.95 1.65 1.50 Samson Cordage Works: Solid Braided Chalk, Nos. 0 to 3.40% Solid Braided Masons'	Hungarian, Finishing, Upholster- ers', &c. See Tacks.	Heavy weight, 40 lbs. to roll.
Cotton Garden, %-in., coupled: Low Gradeft. 8@ 9¢	Solid Braided Masons'	Horse- Nos. 6 7 8 9 10 Anchor 23 21 20 19 18 30 lb.	Plack Water Proof Sheathing.
Fair Qualityft.10@11¢	\$6,00; No. 1, \$6,50; No. 2, \$7,00; No. 3, \$7,50,	Anchor 23 21 20 19 18 # 15, net, 12 & Coleman 13 12 12 11 11 net # 15	500 8q. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, \$1.10; 4 ply, \$1.25.
From 1 to 101b.21/2@23/4¢	White Cotton, No. 3½, \$1.50; No. 4, \$2.00; No. 4½, \$2.50; Colors, No. 3½,	New Haven., 23 21 20 19 18 10 h, net, 12 d Livingston 19 18 17 16 16 10%	Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton
B. B. Sad Ironslb.3\(\pi\)@3\(\pi\)\chi \(mathred{m}\) mrs. Potts', cents per set:	Linen, No. 316, \$2,50; No. 4, \$3,50; No. 416, \$4.50	Western	per roll\$1.75
Nos. 50 55 60 65 Jap'd Caps86 93 96 93	Tent and Awning Lines: No. 5, White Cotton, \$7.50; Drab Cotton, \$8.50	Picture-	1 ply (roll 400 sq. ft.), ton.
Tin'd Caps91 88 1.01 98 New England Pressinglb.3%@hf Bar and Corner—	\$8,50 20% Clothes Lines, White Cotton: 50 ft., \$2,75: 50 ft., \$3.25: 70 ft., \$3.75: 75 ft. \$4.00: 80 ft., \$4.25; 90 ft., \$4.75:	Brass Hd, gro. 45 .55 .60 .70	2 ply, roll 108 sq. ft
Richards Mfg. Co., Bar, 60&10%; Corner	Turner & Stanton Co.:	Por. Head, gro 1.10 1.10 1.10 Upholsters-	3 ply, roll 108 sq. ft
Pinking— Pinking Ironsdoz.60@65¢	Solid Braided Chalk, Masons' and Awning Lines	Rrass	Flint and Emery50&10% Garnet Paper and Cloth25%
Irons, Soldering See Coppers.	Shade Cord, Cotton or Linen20% Locks— Cabinet—	Nippers— See Pliers and Nippers.	Parers-Apple-
Jacks, Wagons— Covert Mfg. Co.:	Cabinet Locks3314@3314@5% Door Locks, Latches, &o-	Nipples— Standard Nipple Co.:	Goodell Co.: Family Bay State
Auto Screw30&2%; Steel, 45%	NOTE.—Net Prices are very often made on these goods.	Nuts Blank or Tapped.	Turn Table '98
Lane's Steel	Reading Hardware Co	Cold Punched: Off list.	White Mountain
Ladder- Bichards Mfg. Co., Ladder Jacks. 50%	R. & E. Mfg. Co, Wrought Steel and Brass	Heragon	Eureka Improvedeach \$29,00 New Centuryeach \$20,00 Rangereach \$30,00
oo, andeer sacks90%		исладон, U., Т. a R. 6.50 (2 6.60¢	Mangereach \$30,00

ivingston Nail Co.:	Police Goods-	Acme, No. 351% in., 19¢; 2 in., 20½¢ American Pulley Co.:	Razors-
Daisy \$\pm\$ doz. \$4.00 Little Star \$\pm\$ doz. \$5.00 Rocking Table \$\pm\$ doz. \$6.20	Manufacturers' Lists 25@25&5% Tower's 25		John Engstrom Swedish
landing Hardware Co .	Polish-Metal, Etc-	Wrought Steel American Plain Axle	Sharp Shaver. Fox Razors, @ doz., No, 42, \$23,00; No. 44, \$20,00; No. 82, Platina, \$36.00.
Advance # doz. \$4.00 Baldwin # doz. \$4.00 Reading 72 # doz. \$3.25	Ladd Co.: Putzade Liquid, \$9 gro., ½ pts.,	in	
Reading 18	\$12,00; 1 pts., \$20,00; 1 qts., \$40.00; 30 doz. 1/2 gals., \$6,35: 1 gals., \$12.00.	Nos. 3 and 4. 30 doz	Reels, Fishing—
oodell Co., Successeach \$20.00	Prestoline Liquid, No. 1 (½ pt.), 9	Common Sense, ₩ doz, 20 ¢ Merit ₩ doz, 2¼ in 37 ¢ Fox-All-Steel, Nos, 3 and 7, 2 in ₩ doz. 50%	Hendryx: M 6, Q 6, A 6, B 6, M 9%, M 16
Potato-	Putzade Liquid, \$\partial \text{gro.}, \frac{1}{2} \text{pts.}, \\ \$12.00; 1 \text{pts.}, \text{\$20.00}; 1 \text{qts.}, \text{\$20.00}; 1 \text{qts.}, \text{\$20.00}; \\ \$1 \text{doz.}, \frac{1}{2} \text{gals.}, \text{\$6.35}; 1 \text{gals.}, \text{\$12.00}; \\ \$1 \text{doz.}, \text{\$20.00}; \text{No.} 1 \text{\$(\frac{1}{2} \text{pt.}), \text{\$9}} \\ \$1 \text{doz.}, \text{\$3.00}; \text{No.} 2 \text{\$(1 \text{qu.}), \text{\$9.00.}, \text{\$00.} \\ \$1 \text{George William Hoffman:} \text{\$1 \text{\$1\$} \text{\$20.00}; \text{\$10.00}; \text{\$10.000}; \text{\$10.000}; \text{\$10.000}; \text{\$10.000}; \text{\$10.000}; \text{\$10.0000}; \text{\$10.0000}; \text{\$10.0000}; \text{\$10.0000}; \text{\$10.0000}; \text{\$10.00000}; \text{\$10.00000}; \text{\$10.00000}; \text{\$10.00000}; \text{\$10.000000}; \text{\$10.0000000000}; \$10.00000000000000000000000000000000000	Fox-All-Steel, Nos. 3 and 7, 2 in	M 6, Q 6, A 6, B 6, M 9%, M 10 Q 16, A 16, B 16, 4008, Rubber Populo, Nickeled Populo
aratoga	U. S. Metal Polish Paste, 3 oz.	Grand Rapids All Steel Noiseless. 50% Niagara, No. 25, 1% in., 19¢; 2	Aluminum, German Silv., Bronze.
Picks and Mattocks-	U, S, Metal Polish Paste, 3 oz. boxes, # doz. 50¢; # gro, \$4.50; ½ fb boxes, # doz. \$1.25; 1 fb boxes, # doz. \$2.25.	Niagara, No. 25, 1% in., 19¢; 2 in. 20½¢ No. 26 Troy1% in., 14½¢: 2 in., 16½¢	3004 N, 06 N, 6 RM, G 9
(List Jan., 1908.)	U. S. Liquid, S OZ, Cans, W doz.,	Star, No. 261% in., 19¢; 2 in., 20½¢ Tackle Blocks—See Blocks.	2904 P., 33½%; 2904 PN., 33½% 0924 N., 33½%; 92084 N., 33½%
ronk's Handled Garden Mattock, A doz., \$3,00331/2/	\$1.25. Barkeepers' Friend Metal Polish, W	Pumps—	002904 PN., 331/2 ; 802 N., 331/2 ;
Pinking Irons—	doz., \$1.75. Stove—	Cistern	Aluminum, German Silva, Bronze, 1240 N, 124 N. 3004 N, 06 N, 6 RM, G 9. 4 N, 6 PN, 24 N, 26 PN. 2904 P, 334%, 2904 PN, 334%, 0924 N, 334%, 92084 N, 334%, 92084 N, 334%, 802 N, 334%, 802 N, 334%, 802 N, 304%, 986 PN, 2904 N, 974 PN. Competitor, 102 P, 102 PN, 202 II. 202 PN, 102 PR, 202 PR, 204 P, 304 P, 304 PN, 00304 P, 00304 PN, 0334 PN, 304 PN, 304 PN, 305 PN, 3
See Irons, Pinking.	Black Eagle Benzine Paste, 5 th cans,	Wood Pumps, Tubing, &s50%	202 PN 102 PR, 202 PR.
Pins, Escutcheon—	Black Eagle, Liquid, ½ pt. cans	Barnes Pitcher Spout	Registers—List July 1, 18
ron, list Nov. 11, '85 60@60&10%	Black Jack Paste, % lb cans, \$9 gr. \$9,00 Black Kid Paste, 5 lb caneach, \$0.65	Contractors' Rubber Diaphragm, No. 2. B. & L. Block Co\$16.00	Japanned, Electroplated and
Pipe, Cast Iron Soil-		2. B. & L. Block Co	Bronzed
Eastern Prices:	100 tins. \$6.75 Joseph Dixon # gr. \$5.75 . 10% Dixon's Plumbago # fb 8¢ Fireside # gr. \$2.50	Flint & Walling's Fast Mail (low	Solid Brass or Bronze Metal. 4
extra Heavy, 2-6 in. 741/2% 7 55	Dixon's Plumbago	Flint & Walling's Tight Ton	Revolvers—
Heavy814%	Innanese 39 or \$3.50	Pitcher	Bingle Action 95¢@\$ Double Action, except 44 cal. \$2
Pipe, Merchant-	Jet Black	ing, Nos. 2, \$6.00; 3, \$5.5030%	Double Action, 44 caliber
Carloads to Consumers: Steel. Iron.	% doz, \$1.50	Myers' Power Pumps	Hammerless
Blk. Galv. Blk. Galv.	Window Polish— Benj. P. Forbes:	Myers' Spray Pumps) 123 Pump Leathers—	Riddles, Hardware Gra
and 1/4 in 66 50 64	Glasbright, No. 2, gal pails, \$\psi\$ doz., \$24.00: each \$2.50: 1 b cans.	Plunger and Valve Leathers-Per	16 inper doz.\$2.50@\$17 inper doz.\$2.75@\$1
in	each	No 1 2 3 4 9	18 inper doz.\$3.00@\$
to 6 in 74 64 72 62	Poppers, Corn-	\$5.00 6.00 7.00 8.00 S	Rings and Ringers—
	1 qt. Square doz. \$0.80; gro. \$8.75	Inch 2½ 3 3½ 4 8 55.00 7.00 9.00 12.00	Bull Rings—
Pipe, Vitrified Sewer— Carload lots.	1 qt. Rounddoz.\$0.90; gro.\$10.00 1½ qt. Square.doz.\$1.20; gro.\$12.00	\$5.00 7.00 9.00 12.00] &	Steel \$0.70 0.75 0.80 (
tandard Pipe and Fittings, 3	2 qt. Square doz.\$1.50; gro\$15.00	Saddlers' or Drive, good,	Hog Rings and Ringers
First-class	Post Hole and Tree Au- gers and Diggers—	doz.50@75¢ Spring, single tube, good qual-	Hill's Rings, per gro. boxes
Second-class90%	See also Diggers, Post Hole, &c.	itu	\$4.60@\$4.75; per doz. box 40@
Pipe, Stove-	Posts, Steel—	Revolving (4 tubes)doz.\$3.50 Bemis & Call Co.'s Cast St'l Drive.50%	Hill's Ringers, Gray Iron, doz. 55@
dwards' Nested: C. L. L, C. L, 5 in., Standard Blue \$6.25 \$7.25 6 in., Standard Blue 6.75 7.75	Steel Fence Posts, each, 6 ft., 46¢; 6½ ft., 48¢; 7 ft., 50¢.	Elmore Tool Mfg. Co.: Machinists' Center. 40% Tinners': Solid, 50%; Prick. 50% Morrill's Nos, 1AA, 1A, 1B, 1C, 1D, 25,00%	Hill's Ringers, Malleable Iron
	Steel Hitching Postseach \$1,30	Tinners': Solid, 50%; Prick50% Morrill's Nos 1AA 1A 1B, 1C.	Blair's Ringsper gro.\$5.50@\$
5 in., Royal Blue 7.00 8.00 6 in. Royal Blue 7.50 8.50	See Parers, Potato.		Blair's Ringers., per doz.65@
7 in., Royal Blue 7.00 8.00 6 in., Royal Blue 7.50 8.50 7 in., Royal Blue 8.50 9.50 Wheeling Corrugating Co.'s Nested:	Pots, Glue-	Hercules, 1 die, each \$5,0050% Niagara Hollow Punches40% Niagara Solid Punches55&10%	Copper Rivets and Burrs
n in. Unitorin Culor \$3,20 \$0.50	Enameled	Tinners' Hollow, P., S. & W. Co., 40% Tinners' Solid, P., S. & W. Co., 39	Tinners' and Miscellaneous
7 in., Uniform Color., 7.40 8.40	Powder	doz., \$1.44	Rivets80@80&
Planes and Plane Irons-	Black Sporting:	Rail-Barn Door, &c	Assorted in Boxes.
Wood Planes— sench, first qual30@30&10%	Half Kegs (121/2 1b.).		Bifurcated, per doz. boxes, par board boxes, 50 count, 23@2
Bench, second qual 40@40&10%		Sliding Door, Wrought Brass,	Tin boxes, 100 count, 29@3 Tubular, per doz. boxes, 50 cou
Bench, second qual40@40&10% folding25@25&10% Chapin-Stephens Co.:	81.50 (0 1.65	11/8 in., 1b., 36¢	29@32¢: 100 count, 51@58¢.
Bench, First Quality30% Bench, Second Quality40%	Canisters, pounds	Cronk's: Double Braced Steel Rail. Pft. 2% c	Rollers—
Molding and Miscellaneous25% Toy and German30%	Canisters, ¼ pounds12) \(\tilde{\text{\sigma}}\) NOTE,—Prices vary according to territory.	O. N. T. Rail2%¢	Cronk's Stay, No. 50. Cronk's Brinkerhoff No. 55, \$0.6
lron Planes -	King's Semi-Smokeless;	xxx, \$\P\$ 100 ft., 1 x 3-16 in., \$3,25; 1\Psi x 3-16 in., \$3.75. Hinged Hanger, \$\P\$ 100 ft., 1 x 3-16	No. 56, \$0,75; No. 60
hanlin's Iron Planes	Keg (25 lb bulk)	Hinged Hanger, \$1 100 ft., 1 x 3-16 in., \$3.50; 1% x 3-16 in., \$4.00.	Handy Adi and Resemble No. 52
Plane Irons-	Quarter Keg (61% lb bulk)\$1.90 Case 24 (1 lb cans bulk)\$8.50	Lane's	O. K. Adj. and Reversible No. 58, Lag Screw, Nos. 55 and 57. Underwriters' Nos. 59, 60. Favorite, No. 54.
Vood Bench Plane Irons, list Dec. 12, '06	Half once (1 The cong bulk) \$4.50	Hinged Track, \$\frac{3}{2}\$ 100 ft\$3.45 O. N. T., \$\frac{3}{2}\$ 100 ft., 1 in., \$\frac{3}{3}\$,12\frac{1}{2}\$; 1\frac{1}{2}\$ in., \$\frac{3}{3}\$,45; 1\frac{1}{2}\$ in., \$\frac{3}{3}\$.400 ft. \$\frac{1}{2}\$ 100	Underwriters', Nos. 59, 60
nek Bros30%	King's Smokeless: Shot Gun, Rifle, Keg (25 lb bulk)\$12,00 \$15.00	Standard, 1th III	Rope—
hapin-Stephens Co	Quarter Keg (6% To bulk) 3.25 4.00	Lawrence Bros.: 1 x 3-16 in., \$9 100 ft., \$7.50; 1¼ x 3-16 in., \$8.75	Manila, 7-16 in. diam. and larg
	Case 24 (1 lb cans bulk) 14.00 17.00 Half case 12 (1 lb c. bk) 7.25 8.75	Trolley, No. 301, \$\pi\$ ft9¢	Pure
Planters, Corn, Hand-ohler's Eclipse,	Presses-	Hinged Hanger Track, \$6 ft., 11¢	Pure
Plates-	Fruit, Wine and Jelly— Enterprise Mfg. Co20@25%	1 x 3-16 Track	Ropes, Medium and Coars
elloelb.3%4@4¢	Seal Presses-	Myers' Stayon Track	Pure
Standard Wrot, Steel Felloe Plates in 100 lb kegs, per 100 lb, %-in, to	Morrill's No. 1, # doz., \$20.0050%	Common, 1 x 3-16 in., \$3.00; 1% x 3-16, \$3.25; 1¼ x 3-16, \$3.50,	Yarn: Purelb.61/2@
1%-in. \$4.00 net; 1%-in, to 2-in., inclusive. \$3.75 net.	Pruning Hooks and Shears See Shears.	Special Hinged Hanger Rail, 60&10% Lag Screw Rail No. 65	Cotton Rope:
Steel Pipe Hook—	Pullers, Nail, Etc	Richards Mfg. Co.: Common, 1 x 3-16 in., \$3,00; 1½ x 3-16, \$3,25; 1¼ x 3-16, \$3,50. Special Hinged Hanger Rail60&10% Lag Screw Rail, No. 65. Gauge Trolley Track, \$\frac{1}{2}\$ ft, No. 31, 9¢; No. 32, 14¢; No. 33, 20¢. No. 50. Nos. 61, \$3,00; 62, \$3,25; 63, \$3,50; 64, \$4,00; \$55, \$3,25; 46, \$3,50; \$4, \$5,00; \$55, \$3,25; 46, \$3,50; \$4, \$5,25; 49, No. 2, \$3,50.	Best, 1/4-in. and larger . 161/260 Medium, 1/4-in. and larger . 150
Pliers and Nippers -	Cyclops	No. 50	Common, 1/4-in. and larger.
utton Pliers75&5@75&10&5% as Burners, per doz., 5 in., \$1.25	Dron Formed Tack Pullers 10%	\$4,00; 45, \$3,25; 46, \$3,50; 49, No. 1, \$3,25; 49, No. 2, \$3,50	Jute Rope: Thread, No. 1, 1/4-in. and up
@\$1.50; 6 in., \$1.45, \$1.50. as pipe 7 8 10 12-in.	Nail Pullers	Rakes—	Thread, No. 1, 1/4-in. and up
\$2.00 \$2.25 \$2.75 \$3.50	Morrill's No. 1 Nail Puller 29 doz.	NOTE Many goods are sold	Thread, No. 2, 4-in. and up
cme Nippers	\$20.00	at net prices.	Wire Rope-
American Button	each \$30.00	American Fork & Hoe Co.: Lawn, & doz., No. 24, \$2.50; No. 20\$2.25	Galvanized 371/262 Plain 4562
Cronk's	No. 2B (large)	Cronk's:	Ropes, Hammock
Stub's Pattern	Smith & Hemenway Co.: 70% Diamond B	Steel Garden: Champion, \$\pi\$ doz., 12-tooth, \$3.75; 14-tooth, \$4.00; 16-tooth, \$4.25; Ideal, \$\pi\$ doz., 12-tooth, \$3.00; 14-tooth, \$3.30; 16-tooth, \$3.00.	Covert Mfg. Co.: Jute, 35%; Sisal
Imore Tool Mfg. Co.: Gas Pliers	Staple Pullers, Utica and Daving	tooth, \$3.00; 14-tooth, \$3.30; 16-	Rules
Gas Pliers	Taylor Mfg. Co., Sampson Tack,	tooth, \$3.60. Victor, 12-tooth, \$2.25; 14-tooth, \$2.50; 16-tooth, \$2.75.	Boxwood
leller's Farriers' Nippera, Pincers and Tools	Pulleys, Single Wheel—	Outpon City Lawn 29 doz 29 teeth	1 vory
pers 40% wedish Side, End and Diagonal Cutting Pliers 50% tica Drop Forge & Tool Co.:	Inch	\$2.85, 24, \$3.00. net Anticlog Lawn	Flexifold
Cutting Pliers	Auning or Tackle.	Malleable Garden	Miscellaneous 50/250
Pliers and Nippers, all kinds40%	Hay Fork, Swivel or Solid Eye,	Kohler's:	Stephens' Combination
Plumbs and Levels—	don bin 21 25 . 5 in 21 55	Jumbo Lawn, 36-tooth	Keuffel & Esser Co.:
Plumbs and Levels30@30&10% Chapin's Imp. Brass Cor40@40&10%	Hot House, doz 80.65 .85 1.20	Lawn Queen, 24-tooth doz, \$3.00	Chapin-Stephens Co, Boxwood Flexifold 1vory 256258 Miscellaneous 506508 Stephens' Combination Stationers' Stationers' 506508 Keuffel & Esser Co, Folding Wood 358 Folding Steel 3348 Lufkin's Steel 508
Pocket Levels	Inch	Paragon 24-tooth \$2.05	Lufkin's Steel
Extension Sights30@30&10% Machinists' Levels40@40&10%	Inch 134 2 21/4 21/9	Paragon, 20-tooth. \$\frac{1}{2}\text{doz}, \$2.65\$ Paragon 24-tooth. \$\frac{1}{2}\text{doz}, \$2.75\$ Steel Garden, 14-tooth. \$\frac{1}{2}\text{doz}, \$2.40\$ Malleable Garden, 14-tooth.	Upson Nut Co.: Boxwood
Disston's Pocket Levels	Side, doz 80.25 .50 .55 .60 Inch 1½ 1¾ 2 2½	\$1.75@2.00 Rasps, Horse—	1vory35&10@35&10&
Stanley's Dulex	Sash Pulleys-	Disston's	Sash Balances—
Delete C1	Common Frame; Square or Round End, per doz. R'4 and	Disston's	See Balance, Sash.
Points, Glaziers'-		McCaffrey's American Standard	Sash Locks-See Locks, Se
Bulk and 1-lb. paperslb. 9 e. 6-lb. paperslb. 9 e.	2 in 17@20¢ Auger Mortist, no Pace Plate.	New Nicholson	Sash Weights-

January 21, 1909	THE IRO	N AGE	209
Sausage Stuffers or Fillers	Machine-	Heinisch's Snips	Slaw Cutters—See Cutters.
See Stuffers or Fillers, Sausage.	Cut Tread, Iron, Brass or Bronze:	Heinisch's Snips	Snaps, Harness-
Saw Frames-	Flat Head or Round Head, 50@50&10%	Niagara Suips	German
See Frames, Saw.	Fillister Head 406140&10%	W. R. W	Derby, 25%; Yankee, 30&2%; Yankee
Saw Sets—See Sets, Saw. Saw Tools—See Tools, Saw.	Rolled Thread, F. H. or R. H., 1ron	Wiss Forged Steel25% Pruning Shears—	Covert Mfg, Co.: Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%; High Grade, 40%; Trojan
_	F. H. or R. H., Brass, Nos. 8 to 14	Cronk's Hand Shears	Snaths—
Saws-	Set and Cap-	Cronk's Wood Handle Shears331/3/8 Disston's Combined Pruning Hook	Grass Scythe 50 @ 50 & 5%
Atkins':	Set (Iron)	Disston's Combined Pruning Hook and Saw, & doz. \$18,00	Snips, Tinners—See Sheare
Butcher Saws		J. T. Henry Mfg. Co.:	Spoons and Forks—
Cross Cuts	Hex. Hd. Cap	dog. \$12,00 and \$15,00 and \$25% J. T. Henry Mfg. Co.:	Silver Plated— Good Quality50&10@60&59
Hand, Rip and Panel	Fillister Hd. Cap60&71/2%	Hedge, Wilcut Brand60&10% Lawn and Border, Wilcut Brand,	Cheap
Mulay, Mill and Drag. 45% Wood Saws. 40&10% Chapin-Stephens Co.:	Vood- List July 23, 1903.	60 & 10%	1917 Dogges Dwgs 10.6.10
Turning Saws and Frames. 30(@30&10%	Elat Hood Ivon Syllasa 9	Sheaves-Sliding Door- Reading	Rogers & Bro., William Rogers Eagle Brand
Diamond Saw & Stamping Works: Sterling Kitchen Saws30&10&10%	Round Head, Iron85&5@% Flat Head, Brass80&5@%	R. & E. list	Wm. Rogers & Sou
Disston's: Circular, Solid and Ins'ted Tooth.50%	Round Head, Brass 771/265@% Flat Head, Braze 7565@%	Reading list 40% R. & E. list 15%	German Silver 60@60&5%
Band, 2 to 18 in, wide	Round Head, Bronze. 721/265@% Drive Screws871/265@%	Shells-Shells, Empty-	Tinned Iron-
Narrow Crosscuts	Scroll Saws -		Tables ner ero \$0.906181.6
Mulay, Mill and Drag50% Framed Woodsaws25% Woodsaw Blades 25%	See Saws, Scroll.	Brass Shells, Empty: Climax, 10 and 12 gauge60&5% Club, Rival, 65&5%; First Quality	Atlas Mfg. Co.: Tea Spoons, # gro
Woodsaw Blades. 25% Woodsaw Rods, Tinned. 15% Hand Saws, Nos, 12, 99, 9, 16, d100. D8, 120, 76, 77, 8. 25% Hand Saws, Nos, 7, 107, 107½, 3, 1.	Scythes— Per doz. Plain Grass, Cutting Edge Pol-	Paper Shells, Empty: New Rapid, 10, 12, 16 and 20 gauge.	Springs- Door-
D8, 120, 76, 77, 8	ished		Bardsley's Spring and Check40 Chicago (Coil)40&10
	Solid Steel, Web and Backs Pol-	Climax, 10 and 12 gauge; Acme and Magic, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge;	Gem (Coil)
Compass, Key Hole, &c25% Butcher Saws and Blades30% C. E. Jennings & Co.'s:	Bush, Weed and Bramble.	Leader grade	Reliance (Coil)
Back Saws	Painted	Leader grade	Star (Coil)
Compass and Key Hole Saws,	Polished\$8.25@\$8.50 Clipper Grain, Bronze Web.		Carriage, Wagon, &c 11/4 in. and Wider: Per 100 ld
Framed Wood Saws	Cupper Grain, Bronze Web. \$8.50@\$8.75	and 20 gauge. 20% Challenge, Monarch, 10, 12, 16 and 20 gauge: League. Union, 14, 16 and 20 gauge; Repeater Grade. 20%	Black
Millers Falls:	Seeders, Raisin-		Bright
Star Saw Blades	Sets— Awl and Tool—	Shells, Loaded— Loaded with Black Powder40%	1½ x 2 x 26pcr pair. 45@47 1½ x 3 x 28per pair. 68@71
Star Saw Blades	Fray's Tool Handles Nos 1 \$12:	Loaded with Smokeless Powder, medium grade40&5%	Sprinklers, Lawn—
Butcher Saws Blades	2, \$16; 3, \$12	Loaded with Smokeless Powder,	American Foundry & Mfg. Co.:
Circular Saws	1, \$12; No. 4, \$12; No. 5, \$1820&10% Garden Tool Sets—	high grade40&10&10% Union Metallic Cartridge Co.; New Club, Black Powders40%	Cactus 65; Japanese, 70%; National, & doz
One-Man Cross Cuts40&10% Gang Mill, Mulay and Drag Saws 45%	American Fork & Hoe Co.:	Nitro Club, Smokeless Powders, 40&5%	Enterprise
Band Saws	Rake, Shovel and Hoe, \$1 doz, sets, No. 3 P F\$7,25	Arrow, Smokeless Powders, 40&10&10% Winchester: Smokeless Repeater Grade40&5%	Squares-
Buttener Saws	Sets, Nail- Octagongro.\$3.50@3.75	Smokeless Leader Grade40&10&10 Black Powder	Nickel plated \ List Jan. 5, 190
Hand Saws	Rnck Bros	Shingles, Metal-Per Sq.	Rosewood Hdl. Try Square and
Wood Saws	Mayhew's "9 gro. \$9.00 Snell's Corrugated, Cup Pt. 40&10'2 Snell's Knurled, Cup Pt. 40&10'2 Victor Knurled, Cup Pt \$9 gro. \$7.50	Edwards Mfg. Co.: Painted. Galv.	Iron Hdl. Try Squares and T-
Co.'s Cross Cut Saws50% Hack Saw Blades and	Victor Knurled, Cup Pt # gro. \$7,50	14 x 20\$1.25 \$6.00 10 x 144.50 6.25	Bevels 40&10@40&10&10 Disston's Try Squares and Bevels,
Frames-	Regular list75@75&10%	7 x 10	Rosewood Handle, 60 & 10%; Iron Stock and Bevel
Atkins' Hack Saw Blades A A A25% Disston's;	Atkin's:	Dixie, 14 x 20 in\$4.05 \$5.05 Dixie, 10 x 14 in 4.25 5.45	Squeezers, Lemon
Concave Blades	Criterion	Dixie, 7 x 10 in 5.25 6.70 Shoes, Horse, Mule, &c	Wood, Porcelain Lined: Cheapdoz. \$1.6
Simonds, 25%; The Best, 35%; Culley	umph	F.o.b. Pittsburgh:	Good Gradedoz.\$1.1 Tinned Irondoz.\$0.75@1.6
C. E. Jennings & Co.'s:	Morrill's No. 1	Iron per keg . \$4.10 Steel per keg . \$3.85	Tron, Porcelain Linea doz. 21.7
Hack Saw Frames, Nos. 175, 180 40&7\\frac{1}{2}\% Hack Saws, Nos. 175, 180, complete,	No. 5, Mill	Burden's, all sizes 🐪 keg \$3.90	Victor, # gro
Goodell's Hack Saw Blades40&10%	No. 1 Old Style	Shot—	Barbed Blind85&5@85&10
Griffin's Hack Saw Frames35&5&10% Griffin's Hack Saw Blades35&5&10%	Giant Royal Cross Cut 19 doz. \$7.50 Royal, Hand	Drop, up to B\$1.80 Drop, B and larger 2.05	Fence Staples, Polished, \$2.05;
Star Hack Saws and Blades15&10% Sterling Hack Saw Blades30&10&5%	Shaving-	Buck	Galvanized
Sterling Hack Saw Frames30&10&10% Sterling Power Hack Saw Machines, each, No. 1, \$25.00; No. 2, \$30.0010% Victor Hack Saw Blades	Fox Shaving Sets, No. 30	Dust 2.30	per 1b. 31/4@31/4
Victor Hack Saw Blades	Sharpeners, Knife-	Shovels and Spades—	Steels, Butchers'— Dick's30
Whitaker Mfg. Co.: National Hand Blades, Hand	Pike Mfg. Co.: Fast Cut Pocket Knife Hones.	Association List. 40&714@40&10% Avery Stamping Co	Steelyards30@30&10
Frames, Power Blades40%	₹9 doz\$1.50 [Snow Shovels-	Stocks and Dies—
	Mounted Kitchen Sand Stone, 18 doz	Long Handle\$2.50@\$2.75 Wood and Mall, D Handle,	Blacksmiths'50@50&10 Curtis Rev ble Ratchet Die Stock.25
Barnes' Scroll Saw Blades40% Barnes' Velocipede Power Scroll Saw,	Hones, & doz\$3.00 &	\$2.65@\$2.90 Sieves and Sifters—	
	Hones, \$\psi\$ doz	Hunter's Imitation, gro\$9.50	Lightning Screw Plate os
with boring attachment, \$1520% Lester, complete, \$10.0015&10% Rogers, complete, \$3.50 and \$4.00	Hones, & doz\$2,59 J	Hunter's Genuine, per gro \$12.00	Little Giant
10001076	Smith & Hemenway Co., Eureka. 50%	Sifters, Ash- Acme Ball Bearing Sales Co., Acme	Stoners, Cherry—
Scales— Union Platform, Plain.\$2.10@2.20	Iron	Automatic Ash Sifter, each, \$3.25; P doz\$39,00	Stones, Axe-
Union Platform, Stpd. \$2.20@2.30 Chatillon's:	1 Wood	Sieves, Seamless Metallic	Pike Mfg. Co., Axe Stones (all
Furely 25%	Bailey's (Stanley R. & L. Co.)45%, Chapin-Stephens Co30@30&10% Goodell's, @ doz. \$9.0015&10%	Mesh 1; 16 18 20 Iron Wire 81.05 1.05 1.10 1.20	Glass Cutters' Stones-
Favorite	Shears-	Tron Wire	Pike Mfg. Co., Glass Cutters' Stones and Supplies40
The Standard R. R. and Wag- on50&10%	Cast Iron 7 8 9 in. Best \$16.00 18.00 20.00 gro.	Sieves, Wooden Rim-	Stones, Oil, &c
Scrapers-	Good\$13.00 15.00 17.00 gro.	Nested, 10, 11 and 12 Inch. Mesh 18, Nesteddoz. \$0.90@0.95	Pike Mfg. Co., 1907 list: 20 fb Arkansas St. No. 1, 3 to 5½ in.\$2,80 Arkansas St. No. 1, 5½ to 8 in.\$3.50
Box, 1 Handledoz.\$1.85@2.10 Box, 2 Handledoz.\$2.35@2.50	Straight Trimmers, &c.:	Mesh 20, Nested doz. \$1.00@1.05 Mesh 24, Nested doz. \$1.30@1.40	Arkansas Slips No. 1\$4.00
Ship Light. \$2.00: Heavy. \$4.50	Best quality Jap70&10&5% Best Quality Nickel60&10&5%	Sinks. Cast Iron-	Arkansas Sips No. 1
Chapin-Stephens Co., Box. 30@30&10% Richards Mfg. Co., Foot	Tailors' Shears	Painted. Standard list: 12 x 12 to 22 x 36 in 60%	Washita St., No. 1, 4 to 8 in. 40¢ Washita St., No. 2, 4 to 8 in. 40¢ Washita St., No. 2, 4 to 8 in. 25¢ Lily White Slips
Screws—Bench and Hand Bench, Iron. doz., 1 in., \$2.50@	National Cutlery Co.'s Nickel Plated.	20 x 24 to 24 x 50 in 50%	a sony accu milipa
2.75: 114. \$3.00(015.25: 114. \$3.50(0.5.75	60&10%; Japan Handles70&10% Columbian Cutlery Co.; Sheep, 1900 list30&10&5%	24 x 60 to 24 x 120 tn30% Barnes' low list	Washita Slips, Extra
Bench, Wood20@20&10% Hand, Wood70&10@70&10&10%	Grass	NOTE.—There is not entire uniformity in lists used by jobbers.	Washita Slips, No. 1
Chapin-Stephens Co., Hand	J. Wiss & Sons Co.: Best Quality Jap'd	Skeins, Wagon-	Quickcut Emery and Corundum Oil Stone, Double Grit
Coach, Lag and Hand Rall— Lag. Cone Point	Best Quality Nickeled	Cast Iron	Stone Double Crit 3314
Coach, Gimlet Point80% Hand Rail70&10@75%	Tinners' Snins-	Slates, School-	Quickcut Emery Rubbing Bricks. 40 Hindostan No. 1, R'g'lar 39 fb 86 Hindostan No. 1, Small. 39 fb 106
Jack Screws-	Steel Blades 50&5@20&10% Steel Laid Blades 50&10%	Factory Shipments. "D" Slates50@50&10%	Turkey Oil Stones, Extra, 5 to 12
Standard List	Acme Cast Snips40@45&5% Forged Handles, Steel Blades, Ber-	Eureka, Unexcelled Notaless 60&7 tens.	Queer Creek Stones, 4 to 8 in 20 c Queer Creek Slips
Swett Iron Works	lin50%	Victor A, Noiseless . 60&4 tens &5%	Sand Stone

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Scythe Stones-	Tinware
Scythe Stones— Pike Mfg. Co., 1907 list: Black Diamond S. S. \$\pi\$ gro. \$12.00 Lamoille S. S. \$\pi\$ gro. \$11.00 White Mountain S. S. \$\pi\$ gro. \$11.00 White Mountain S. S. \$\pi\$ gro. \$7.00 Extra Indian Pond S. \$\pi\$ gro. \$7.00 No. 2 Indian Pond S. \$\pi\$ gro. \$7.50 No. 2 Indian Pond S. \$\pi\$ gro. \$7.50 Leader Red End S. S. \$\pi\$ gro. \$5.00 Leader Red End S. S. \$\pi\$ gro. \$5.00 Leader Red End S. S. \$\pi\$ gro. \$10.00 Pure Corundum. \$\pi\$ gro. \$18.00 Crescent \$\pi\$ 7.00 Emery Scythe Rifles 2 Coat. \$8.80 Emery Scythe Rifles 2 Coat. \$8.80 Emery Scythe Rifles, 3 Coat. \$11.00 Emery Scythe Rifles, 3 Coat. \$11.00 Emery Scythe Rifles, 4 Coat. \$13.20 Balance or 1907 list 3345% \$12.00 Lightning (Artificial), \$\pi\$ gro. \$12.00 3345% \$12.00 Stoppers, Bottle	Stamped, Jaj
White Mountain S. S. gro. \$9.50	Tire Bend
Green Mountain S. S. # gro. \$7.00 Extra Indian Pond S. S. # gro. \$8.00	See Benders
No. 1 Indian Pond S.S. gro. \$7.50 No. 2 Indian Pond S.S. gro. \$5.00	L. & I. J. \
Quick Cut Emery gro. \$10.00	Myers' Hay
Pure Corundum gro. \$18.00 Crescent	Gifford-Wood
Emery Scythe Rifles, 3 Coat. \$1.00	M
Balance of 1907 list 331/8 212 20 3314 9	Smith & He son, # doz Gold Plated
\$12.00 (Artificial), 48 gro., \$12.00.331/8/	
\$18.0033 % %	Atkins' Cross Simond's Imp
Stoppers, Bottle— Victor Bottle Stoppers@ gro. \$9.00	Simonds' Cre
Stops- Bench-	L. & I. J. W
Millers Falls	Hammers, Er
Morrill's, No. 2 \$12.50 Door—	Transon See Li
Chapin-Stephens Co50@50&10%	Traps-
Plane- Chapin-Stevens Co20%	Balloon, Gl \$1.15@\$1.25
Straps- Box-	Harper, Ch.
Acme Embossed, case lots20&10&10% Cary's Universal, case lots20&10&10%	2 20 20 20
Stretchers, Carpet— Cast Iron, Steel Pointsdoz.55¢ 411 Steel Socketdoz.\$2.00@2.25 Excelsior Stretcher and Tack Hammer Combined, # doz., \$6.0020%,	Newhouse Hawley & No
All Steel Socket doz . \$2.00@2.25	Victor
excelsior Stretcher and Tack Hammer Combined, & doz., \$6.0020%	Victor Oneida Comm Stop Thief Tree Trap
CAUSIANA CAUSAGA	Hector
Lard Presses	Mouse, Woo
Enterprise Mfg. Co., Stuffers and Lard Presses	Mouse, Rou
Sweeners Carnet-	Marty French
Soshen Sweeper Co.: Per doz. Gilt Edge	(Genuine),
Superfine	No. 1, Rat No. 3, Rat No. 3½, Ra No. 5, Mo Animal Trap Out o' Sigh Out o' Sigh Easy Set, N Easy Set, Out o' Sigh
Select, Nickeled	No. 3½ Ra No. 5, Mot
National Queen, Nickeled\$27,00 Martha Washington, Nickeled. 25,00	Animal Trap Out o' Sigh
Monarch, Japanned	Out o' Sigh Easy Set, 1
treator Metal Stamping Co.: Model E. Sanitaire\$25,00	Easy Set, Out o' Si
Model E. Santaire	Out o' Sigl
NOTE.—Leading Manufacturers give	Trowels
NOTE.—Leading Manufacturers give the following rebates from list prices. 50c per dozen on three-dozen lots: \$1 per fozen on five-dozen lots; \$2 per dozen on ten dozen lots.	Disston Bric Disston Plas Disston 'Sta den Trowel
lozen on five-dozen lots; \$2 per dozen on ten dozen lots.	Disston "Sta
Tacks, Finishing Nails,	
merican Carpet Tacks.90&25@-%	5 in., \$4.80; Never-Break Trowels, in In 1 doz, Woodrough &
American Cut Tacks. 90&25@—\{ American Cut Tacks. 1. 90&25@—\{ Swedes' Cut Tacks. 1. 90&30@—\{ Swedes' Upholsterers' 90&35@—\{ Grap Tacks. 90&35@—\{ Lace Tacks. 90&35@—\{ Trimmers' Tacks. 90&36@—\{ Looking Glass Tacks. 65@—\{ BULL Boxtery' and Railroad Tacks. 90&10 Railroad Tacks. 90.	Woodrough &
Swedes' Upholsterers'.90&35@-% Gimp Tacks90&35@-%	Taucks
Lace Tacks90&\$5@—% Trimmers' Tacks90&\$0@—%	B. & L. Bloom New York Western Pro- Handy Tru
Looking Glass Tacks65@-%. Bill Posters' and Railroad Tacks.	Handy Tru Grocery
Ditt Losters and teath one I down	McKinney To Model Stove
Hungarian Nails	Tubs, W
NOTE The above prices are jor	No
Straight Weights, Miscellaneous-	Galvanized.
Double Pointed Tacks,	Twine,
Se also Nails, Wire.	Flax Twine No. 9, ¼ 6 No. 12, ¼ 6 No. 18, ¼ 6
Tanks, Oil and Gasoline- Wilson & Friend Co.:	No. 12, 14
Gol Gasoline Ull	240. 24, 74
60 \$3,50 \$4,00 310 \$5,00 \$5.75	No. 36, 1/4 Chalk Li
Tapes, Measuring-	Balls
Tapes, Measuring— American Asses' Skin 50@—% Patent Leather	to doz
Steel	Cotton Wre according American
Keuffel & Esser Co.: Favorite, Ass Skin 40&10@50%	1/2-16. Ball
Favorite, Duck and Leather	American Balls
35 & 5 % . Pocket 35@35 & 5 %.	India, c-Pla Balls (8)
Lufkins: Skip. 40&10@50% Asses' Skip. 40&10@50% Metallic Patent Bend, Leather .25&5@25&10% Pocket 40@40&5%	India 3-Ply
Metallic	India 2-Ply
Pocket	2, 3, 4 and
Chesterman's Metallic, No. 3414.	Balls Mason Lin
etc. 25% Chesterman's Steel, No. 1038L. etc. 35%	No. 264 Ma Balls, ac
Teeth, Harrow-	Wool, 3 to
Steel Harrow Teeth, plain or headed, Linch and larger	W.
per 100 to	Solid Box.
Tin Case, Cabinet, Flange.	
Dairy, &c	Athol Machi Simpson's Standard .
Ties, Bale—Steel Wire— Single Loop	Amateur . Columbian
Mouitor, Cross Head &c.7042169	Slide Fisher & No
Tinners' Shears, &c	each Nos.

Tinners' Shears, &c. -See Shears, Tinners', &c.

	THE	IRO
inware-		1
nped, Japanned at ry generally at net Benders, Up	nd Pieced, prices.	sold
Benders, Up Benders and U	setters, d	ire.
Benders and U	rs'-	0.50
Haying rs' Hay Tools	3-	50%
Ice Too	IS-	.15%
Miniatu	re-	13.
Miniatu th & Hemenway doz., Nickel dd Plated	Plated, \$1.	50; \$2,00
ns' Cross Cut Saw ond's Improved	**************	31/4 %
Ship k I. J. White		.25%
orches— mers, Engine, #	doz	\$1,50
ransom Lifte See Lifters, Tr	rs— .	
Elv		
loon, Globe or .15@\$1.25; gro per, Champion of z., \$1.25@1.40; g	Acme, doz	i2.00
z., \$1.25@1.40; g	ro.\$13.00@	13.50
Game tation Oneida	75@	10%
tation Oneida house ley & Norton Thief Trap Lor	75@75A	&10% 6-10%
ida Community Ju	ımp70	.60%
Trap	75@75&	.60%
Mouse an use, Wood, Chok	d Rat- er, doz. ho	les,
use, Round or S	quare Wire	e,
ty French Rat and	doz.85@ d Mouse Tra	ps
ty French Rat an Genuine), # doz.: 1, Rat	lots. Small	lots.
3, Rat	\$5.75 \$4.70	\$6,50 \$5,25
nal Trap Co.:	\$2.25	\$3,00
it o' Sight, Rat, a	doz	1.20
sy Set, Rat, 19	dozdoz.kers, 🍎 d	85 oz.
rowels— ston Brick and Poton Plastering ton 'Standard Brin Trowels. ler's Steel Garden in. \$4.80; 6 in., \$6 er-Break. Forged owels, in bulk, in 1 doz. boxes. drough & McParli	,	08.04
ston Brick and Poston Plastering	ointing	.25%
n Trowels	Trowels,	.30% gro.
in., \$4.80; 6 in., \$6, er-Break, Forged	Steel Gard	len
in 1 doz, boxes	net p gro. P gro. n. Plastering	\$6.00 .25%
rucks, Wareh	ouse,&c	
ew York Pattern	504	£10% £10%
ocery	@ doz. \$	16.00 15.00
rucks, Wareh & L. Block Co.: ew York Pattern. estern Pattern. andy Trucks. ocery tinney Trucks. lel Stove Trucks. "ubs, Wash— fifar's list. pric	each, net \$	18.50
ubs, Wash— I'f'gr's list, pric No. 0 1 vanized.\$67 \$79 565%	e per gros	8.
vanized. \$67 \$79	\$89 \$99 10	£71/9
wine Misse	llesseus	
x Twine: 0. 9, ¼ and ½-lb. 0. 12, ¼ and ½-lb. 0. 18, ¼ and ½-lb. 0. 24, ¼ and ½-	Balls.21@	23€
o. 12, ¼ and ½-lb o. 18, ¼ and ½-lb	. Balls . 19 @	021¢
o. 24, 1/4 and 1/2 -	lb. Balls. 151/2@1	71/2¢
o. 36, ¼ and ½-lb nlk Line, Co alls ton Mops, 6, 9, doz ton Wrapping, 2	Balls. 15@	117¢
ton Mops, 6, 9,	12 and 15	lb.
ton Wrapping,	Balls to	b
coording to qua erican 2-Ply H lb. Balls merican 3-Ply alls	emp, 14 a	nd nd
merican 3-Ply	Hemp. 1-	164
lia, e-Ply Hemp, alls (Spring Tu lia 3-Ply Hemp,	11/2-16. Ball	8,
lia 3-Ply Hemp,	1-lb. Balls	@9¢
lia 2-Ply Hemp,	11/2-10. Ball	18,
3. 4 and 5-Ply	Jute, 11/2-1	b.
8, 4 and 5-Ply falls son Line, Linen 264 Mattress, 9 falls, according	4 and 16 1	8.47¢
salls, according	to qualit	₩. 260¢
ol, 3 to 6 ply	B 6¢; A	71/2€
ises— id Box	60@60	10%
Parall and Machine Co.: anpson's Adjustab landard mateur umbian Hdw. ide her & Norris Dout her & Nors, 2, \$10,50,50,50,50,50,50,50,50,50,50,50,50,50	el-	10/0
impson's Adjustab	le	40%
mateur umbian Hdw.	Co., 40&	25%
her & Norris Don't	hle Screw t	net.
0.50; 5, \$27.00; 6,	\$32.00.	-

N	AGE
Fulton	Mach. & Vise Co.: & R. Double Swivel Ma- nists'
chi:	Solid Jaw, Machinists'40% dds': 40@40&59
Hollan Mach Keys	ds': unists' 40@40&5% tone 65&5@70% Tool Co.: stable Jaw 30% arch, 50%; Solid Jaw 50% y Vise Co.: her 40% ther 15%; Lightning Grip 15% 25%
Lewis	Tool Co.: stable Jaw30%
Massey	arch, 50%; Solid Jaw50% Vise Co.:
Para Perfe	llel Bar
Merrill Millers	's 25% Falls Oval Slide Pattern.60&10%
Viete	Falls Oval Slide Pattern 80&10% s; n; 20@25%; Regulars 20@25% un's 40@45% jination Pipe 55a@0% sland 25% r's X L 33¼4% ns' 33¼4% Saw Fliers
Com! Prentis	bination Pipe
inedik Stephe	er's X. L331/4 %
Dissto	ns'
doz., Perfec Readir	\$24.00, 30%; Clamps30% tion Saw Clamps, \$3 doz\$4.50
F. ma	Wood Workers— Mach. & Vise Co.: & R. Double Swivel Coach- n's
Star Masse;	Solid Jaw Woodworkers' 60% y Vise Co.; tring Grip, 15%; Perfect 15% n & Gordon's Quick Action, 6 \$6.00; 9 in. \$1.00; 14 in. \$8.00,
Wyma in.,	n & Gordon's Quick Action, 6 \$6.00; 9 in., \$7.00; 14 in., \$8.00.
T2 14	Marking & Via Co Com
binat Hollan	d's Combination Pipe60@60&5%
Parket 87 Se	's Combination Pipe: eries, 60%; 187 Series, 60&5%; No.
Rock	informe & Vise Co., Com- informer in Pipe. 100/60&5%; d's Combination Pipe. 600/60&5%; d's Combination Pipe. 40%; d's Combination Pipe. 50%; No., 40%. Island Pipe
w.	ds Price per M.
B. E. B. E.	, 11 up
B. E. B. E.	, 8
P. E.	, 9 and 10 1.25
P. E.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Ely's	P. E., 12 to 20\$3.00@3.25
O to us	Cast Iron, Hollow- Hollow Ware:
Ena	meled45&10%
Plai	meled
Whit	e Enameled Ware
Mas Cover	din Kettles65&10% red Wares: ned and Turned35&10%
Ena	med and Turned35&10% meled45&10% See also Pots, Glue.
	Enamoled
Agate El-an- Iron	Nickel Steel Ware
Lava	and Volcanic, Enameled. 40&10% Tea Kettles—
Galve	nnized Tea Kettles: 10 7 8 9 11 45 6 50 6 55 6 65 6
Eac	h 45¢ 60¢ 65¢ 65¢ teel Hollow Ware-
Neve	h
Stee	s
Porc Clevel	
	1 Steel Spiders and Grid- 5
W	armers, Foot—
Pike	Mfg. Co., Soapstone40@40&10%
No. 800-B	rass King, Single Surface.
862-W	hite Hen, Spiral Grimp
964-R face	oyal Blue Enamel, Single Sur- Ventilated Back\$3.35
Drai 722—S	rass King, Single Surface, 1 Back
Top 100-N	oap Saver, Single Zinc, Iron \$3,35 orthern Queen. Single Zinc, orated, Open Back\$3.00 niversal, Single Zinc, Extra nily Size. Ventilated Back\$2.80 anner Globe, Single Zinc, Ven- ed Back\$2.25
134—U Fan	niversal, Single Zinc, Extra nily Size, Ventilated Back\$2.80
760-B	anner Globe, Single Zinc, Ven- ed Back\$2.25 eerless, Double Zinc, Spring
Prof 56-R	ector\$3.70
17-N	orth Star Solid Zine, Swing
797 — J	ector

Washers-Leather, Axle

 Solid
 .90@90&10%

 Patent
 .90@90&5%

 Coil:
 %
 1 1%
 1¼ inch.

 9c
 10e
 11e
 14e
 per box.

 9¢ 10¢ 11¢ 11¢ per box.

Iron or Steel—
Size bolt... 5-16 3% ½ ½ ½
Washers... \$1,90 4.00 2.70 2.50 2.30
The above prices are based on \$6.50 aff list.
In lots less than one keg add ½c per lb.; 5-lb. boxes add ½¢ to list.

Avery Stamping Co.:
Standard, in 200 b kegs, \$6.00 \$100 bb. disct, in 100 bb kegs add 100 nct \$100 bb. in 5 or 10 bb boxes, add \$0¢ nct \$100 bc. in 5 or 10 bb boxes, add \$0¢ nct \$100 bc. in 1 bb boxes, add \$1.00 nct \$100 bc.

Cast Washers— Over 1/2-inch, barrel lots, per lb.11/2@11/4¢ Wedges— Wire Cloth and Netting—
Galvanized Poultry Netting,
80:4610@8004:10:45%
Screen Cloth, 12 Mesh, Per 100
sq. ft.: Painted, \$1.30; Galvanized, \$1.90; 14 Mesh, Bronze
\$6.50 Wire, Barb-See Trade Report Wrenches-Other Wrenches. 10&10&5 %
Vulcan and Agrippa Chain .50 %
Whitaker Machinists .50 %
Wizard Adjustable Ratchet .50 %
Fruit JarBeni, P. Forbes, Triumph, 19 gro.
\$7.50: per doz. \$5.90
Wrought Goods. \$5.90

Stanle Hooks & Ist March Staple Hooks, &c., list March 17, '92......90@-Zine- (Cask lots at mill.) Sheet per 100 lb., \$7.00

